THE DRUG AND COSMETIC INDUSTRY

ESTABLISHED 1914

Formerly Called "DRUG MARKETS"

June, 1933

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VOL. XXXII **DRUG MARKETS, INC.** NUMBER 6

PUBLISHERS

Publication Office, 28 Renne Ave., Pittsfield, Mass. Editorial and General Office, 101 W. 31st St., N.Y. City

Editor
THOMAS R. FARRELL

Business Manager
FRAZER V. SINCLAIR

PUBLISHED MONTHLY AT PITTSFIELD, MASS., SUBSCRIPTION PRICE, TWO DOLLARS A YEAR, IN ADVANCE, FOREIGN COUNTRIES THREE DOLLARS, THREE WEEKS' NOTICE IS REQUIRED TO CHANGE SUBSCRIBER'S ADDRESSES, AND WHEN NOTIFYING KINDLY GIVE BOTH OLD AND NEW ADDRESSES; PRINTED BY THE SUN PRINTING COMPANY, PITTSFIELD, MASS. ENTERED AS SECOND CLASS MATTER, JANUARY 1, 1928 AT THE POST OFFICE AT PITTSFIELD, MASS., UNDER THE ACT OF MARCH 3, 1879.

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ESSENTIAL OILS
and Kindred Products

Our service to the manufacturer of toilet articles is complete for all requirements.

Our Perfume Laboratories are at your free disposal on any special problems.

We are *headquarters* for

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ANIMAL FIXATIVES and
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specially prepared and ready for use at very attractive prices.

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180 Varick Street New York City

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J. T. Baker Chemical Co.
Benzol Products Co.
California Fruit Growers Exchange
Dow Chemical Co.
Heyden Chemical Corp.
Mallinckrodt Chemical Works
Merck & Co., Inc.
Monsanto Chemical Works
N. Y. Quinine & Chemical Works
Chas. Pfizer & Co., Inc.
Schuylkill Chemical Co.
Sherka Chemical Co.

Alcohol
A. K. Hamilton
Rossville Commercial Alcohol Corp.
U. S. Industrial Alcohol Co.

Alkaloids
Abbott Laboratories
J. T. Baker Chemical Co.
Mallinckrodt Chemical Works
Merck & Co., Inc.
N. Y. Quinine & Chemical Works

Bromides
J. T. Baker Chemical Co.
Mallinckrodt Chemical Works
Merck & Co., Inc.
N. Y. Quinine & Chemical Works

Citric Acid
H. J. Baker & Bro.
J. T. Baker Chemical Co.
California Fruit Growers Exchange
Dodge & Olcott Co., Inc.
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Merck & Co., Inc.
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Glandular Products
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Magnesia
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Salicylates
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Dow Chemical Co.
Heyden Chemical Corp.
Mallinckrodt Chemical Works
Merck & Co., Inc.
Monsanto Chemical Works
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Aromatic Chemicals
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California Fruit Growers Exchange
Dodge & Olcott Co., Inc.
P. R. Dreyer, Inc.
E. I. du Pont de Nemours & Co., Inc.
Benj. French, Inc.
Fritzsche Brothers, Inc.
General Drug Co.
Givaudan-Delawanna, Inc.
Magnus, Mabee & Reynard, Inc.
Compagnie Parento, Inc.
Sherka Chemical Co.
A. M. Todd Co.
Ungerer & Co.
van Ameringen-Haebler, Inc.

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W. J. Bush & Co., Inc.
California Fruit Growers Exchange
Dodge & Olcott Co., Inc.
P. R. Dreyer, Inc.
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Magnus, Mabee & Reynard, Inc.
Compagnie Parento, Inc.
A. M. Todd Co.
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van Ameringen-Haebler, Inc.

Flavors
W. J. Bush & Co., Inc.
California Fruit Growers Exchange
Dodge & Olcott Co., Inc.
P. R. Dreyer, Inc.
Fritzsche Brothers, Inc.
A. K. Hamilton
Magnus, Mabee & Reynard, Inc.
Monsanto Chemical Works
Compagnie Parento, Inc.
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Cod Liver Oil
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P. R. Dreyer, Inc.

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S. Schwabacher & Co., Inc.
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Quinine
Mallinckrodt Chemical Works
Merck & Co., Inc.
N. Y. Quinine & Chemical Works

Cosmetic Materials
M. W. Parsons, Imports
John Powell & Co., Inc.
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Cosmetics (Private Brand)
Sterling Manufacturing Co.

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Peek & Velsor, Inc.
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Chalk
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John & E. Sturge, Ltd.
Universal Gypsum & Lime Co.

Colors
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R. F. Revson Co.

Gums
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Lanolin
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Stearates
Franks Chemical Products Co.
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Titanium Pigment Co.

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New Jersey Zinc Co.

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Hart Glass Mfg. Co.
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C. F. Hatch Co.

Collapsible Tubes
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Glassine Paper
Riegel Paper Corp.

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Armstrong Cork & Insulation Co.

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Anchor Cap & Closure Corp.
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Crown Cork & Seal Co.
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Anchor Cap & Closure Corp.
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Beetleware Corp.

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Armstrong Cork & Insulation Co.

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Capping, Filling & Packaging Machinery
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Karl Kiefer Machine Co.
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Chas. Ross & Son Co.
F. J. Stokes Machine Co.
Stokes & Smith Co.
U. S. Bottlers Machinery Co.

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Pfaudler Company
Chas. Ross & Son Co.
F. J. Stokes Machine Co.
U. S. Bottlers Machinery Co.

Production Equipment
Karl Kiefer Machine Co.
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Chas. Ross & Son Co.
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37 YEARS OUT OF A HUNDRED

It's called a Century of Progress,—a century indeed, filled with achievement in every endeavor. The greatest mechanical and scientific advances have been accomplished, however, in the past thirty or forty years.

The MM&R organization, established in 1895, has kept apace of the Twentieth Century's record of progress. In its chosen field this company has adhered consistently to standards of quality in all its products and has been guided by a policy of fair prices, ethical competition and helpful cooperation with its customers.

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JEALOUS OF THEIR REPUTATION

LILLY'S REPUTATION FOR HIGH QUALITY
is entrusted to dependable, uniform Armstrong's Corks.

FAMOUS

"First Families"

SAFE-SEAL THEIR PACKAGES WITH

Clean, Live Corks

VITAL to a manufacturer's good name is the quality of his products. Vital, too, is the closure which seals and safeguards this quality. That's why so many drug and pharmaceutical houses with famous names to uphold choose dependable Armstrong's Corks—closures that won't "go bad."

They know they can trust these uniform corks to deliver their products as made—never give the user cause for complaint. Armstrong's Corks are made only of strong, live cork. They are accurately shaped. Honestly graded to unvarying standards. Whether you order 500 or 5,000 you are sure of getting the quality you pay for.

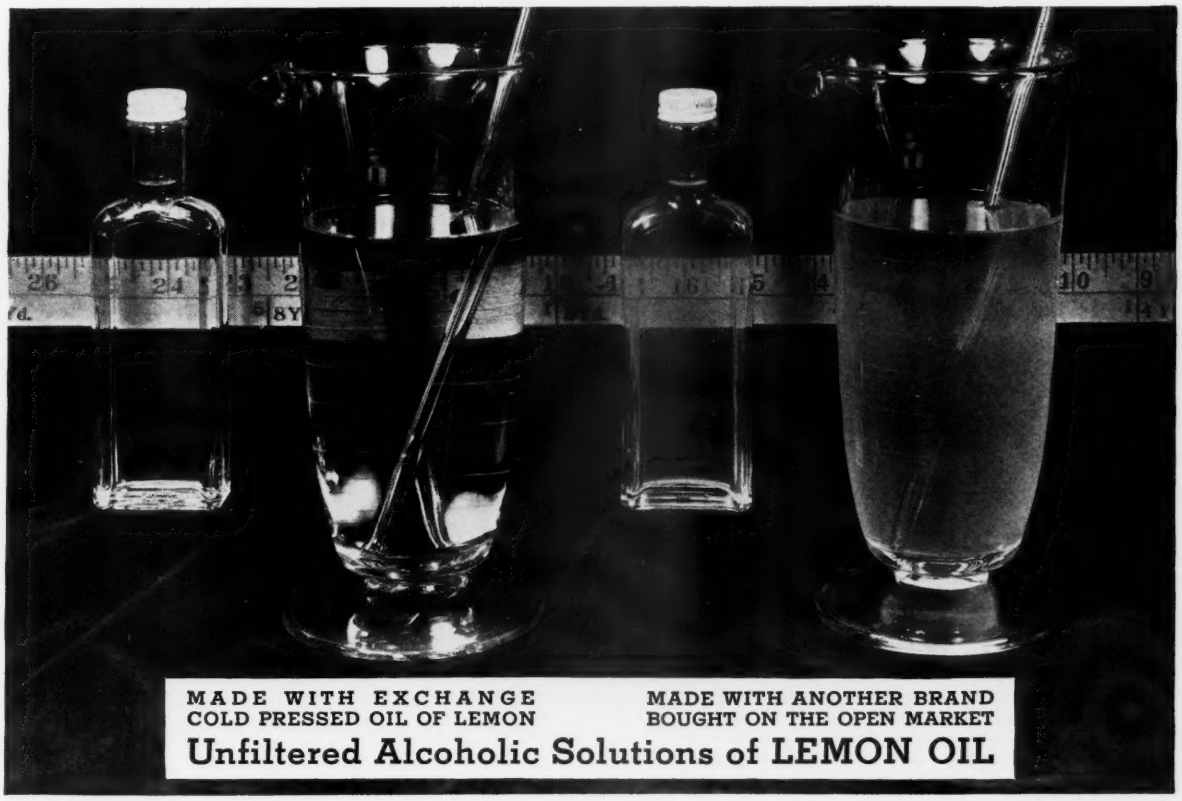
Armstrong also offers you the services of its laboratories and Package Styling Department. Expert, unbiased advice will gladly be given on sealing problems or questions of design. Just outline your requirements and send samples to Armstrong Cork & Insulation Company, Closure Division, 913 Arch St., Lancaster, Pennsylvania.

Armstrong's Corks

Consider, also, these other closures in the complete Armstrong Line

Compare these two Lemon Oil Solutions

New Clarified Oil produces clear alcoholic solutions because the troublesome insoluble substances have been completely removed


MADE WITH EXCHANGE
COLD PRESSED OIL OF LEMON
MADE WITH ANOTHER BRAND
BOUGHT ON THE OPEN MARKET
Unfiltered Alcoholic Solutions of LEMON OIL

THESE two containers tell their own story of a remarkable step forward in lemon oil manufacture.

You simply add alcohol to the new Exchange Brand Oil of Lemon and get immediately an absolutely clear, yellow solution for use in your products!

The exclusive Exchange process removes the insoluble substances that cause muddiness. No cloud. No sediment. No filtration. No waste!

Improved in Flavor, Color, Aroma

For years, Exchange Brand Oil of Lemon has been notable for its fine flavor, color and aroma. The application of Exchange standards of production control to rich California lemons has assured this. Now these qualities are further improved.

Exchange Brand Oil of Lemon is uniform in performance. Stable in your finished product.

Test These Advantages

Prove these advantages by a test in your own product. Compare the new Exchange Brand Oil of Lemon with any—regardless of price. Then figure your saving.

Order now, and start at once to get improved results at lower cost.

QUICK FACTS

1. **Flavor** that suggests a freshly-cut lemon
2. Finer **Aroma**
3. Deep natural **Color**
4. **Stable** in your finished product
5. **Uniform Performance**
6. **Lower Cost** per unit of flavor

AND NOW...

7. **CLARIFIED.** No sediment. No cloud. No **filtration.** No waste.

Sold to the American market exclusively by

DODGE & OLCOTT COMPANY
180 Varick Street, New York City

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Distributors for

CALIFORNIA FRUIT GROWERS EXCHANGE
Products Department, Ontario, California

Producing Plant: EXCHANGE LEMON PRODUCTS CO., Corona, Calif.

Exchange BRAND

OIL OF LEMON

Copr., 1933, Products Department, California Fruit Growers Exchange

"All the Physical Properties that.....should have"

Accurate chemical analysis shows that SNOW TOP Precipitated Chalk is far better than called for by the United States Pharmacopoeia, with a minimum of acid insoluble matter.

Careful checking has demonstrated that SNOW TOP is unexcelled for purity and possesses all the physical properties that a chalk for dentifrices should have.

It is uniform to your specifications in density, absorptive characteristics, chemical analysis and freedom from grit.

SNOW TOP CHALK is made in the U. S. by American machinery and workmen and the plant has sufficient capacity to supply your and *your* and **your** heaviest demands.

Ask for a sample and quotation, being sure of getting fair prices and excellent service, direct from the manufacturer.

INDUSTRIAL CHEMICAL SALES COMPANY, INC.

230 Park Avenue, New York **205 W. Wacker Drive, Chicago**

SNOW TOP

PRECIPITATED CHALK **CRETA PRÆCIP U. S. P.**

DELICATE as a Rose

GERANIOL EXTRA

There will be no more sharp by-odors when you use this du Pont aromatic. For Geraniol Extra is as delicate in scent as the rose itself. Improved processes of manufacture plus the most highly skilled technical direction insure its chemical purity and uniformity.

DU PONT
REG. U. S. PAT. OFF.
AROMATICS

E. I. DU PONT DE NEMOURS & CO., INC.
Organic Chemicals Department
Fine Chemicals Division, Wilmington, Delaware

MAIL COUPON FOR SAMPLES

E. I. DU PONT DE NEMOURS & COMPANY, INC. D-6-33
Organic Chemicals Department, Fine Chemicals Division, Wilmington, Delaware

Gentlemen: Please send me samples of your GERANIOL EXTRA

*I am a manufacturer of*_____

*Name*_____ *Firm*_____

*Address*_____

*City*_____ *State*_____

STURGE'S STANDARD PRECIPITATED CHALK

Many tooth paste manufacturers have found through costly experience that the uniformity of the specific grade of precipitated chalk adopted for their formula must never vary.

It is important, experience shows, to use a precipitated chalk that is gritless, free from metals and free alkali, white and fluffy.

But it is vital to a good tooth paste to have these qualities and the specific density of the chalk always uniform.

That is why manufacturers of leading tooth paste brands have always specified Sturge's Standard Precipitated Chalk.

JOHN & E. STURGE, Ltd., Birmingham, England

Distributors:

H. J. BAKER & BRO.

271 Madison Ave., New York, N. Y.

FOR A GOOD TOOTH PASTE

Think it over...

Without glass-lined steel equipment many reactions would be commercially impossible . . . .

MANY successful research developments, conducted in laboratory glassware, would have been incapable of transfer to the plant commercially without Pfaudler glass-lined process equipment.

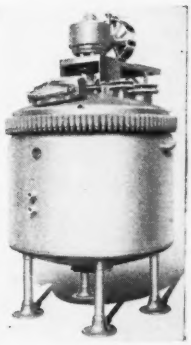
For example, this statement applies very frequently to reactions involving free hydrochloric, sulphuric, hydrobromic, and hydriodic acids.

Only recently one of the world's largest chemical manufacturers placed a substantial order for glass-lined steel equipment for manufacturing a new synthetic material by means of a reaction which could not have proceeded if even a ***trace*** of ***any metal*** were present.

This is typical of the reliance of the chemical industry on Pfaudler equipment to perform efficiently under exacting conditions.

The Pfaudler Company, **1509** Gas & Electric Building, Rochester, N. Y. Factories: Rochester, N. Y. and Elyria, Ohio. Branch Offices: New York, 8 West 40th Street; Chicago, 111 W. Washington Street; San Francisco, The Pfaudler Sales Company, 122 New Montgomery Street.

Pfaudler

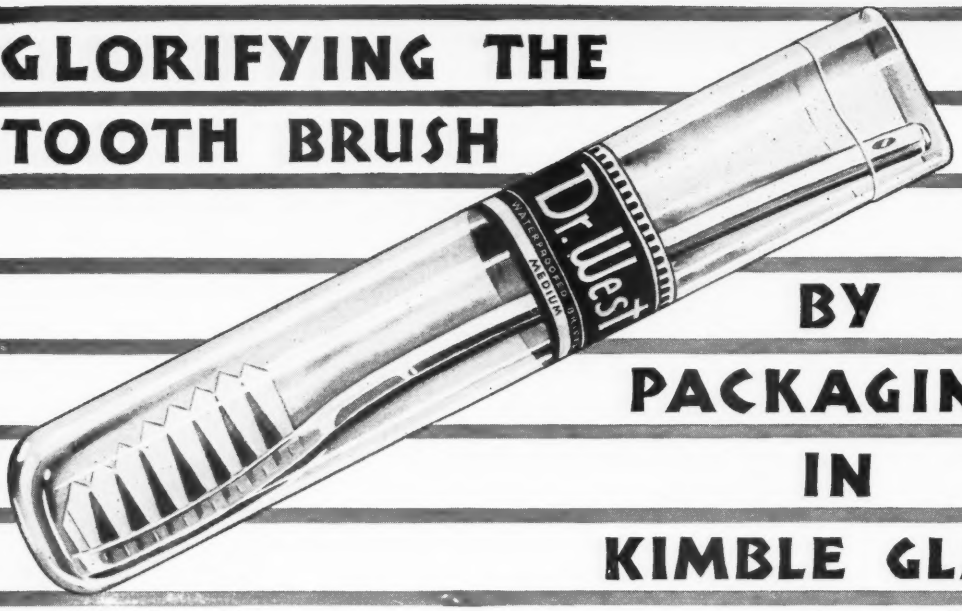


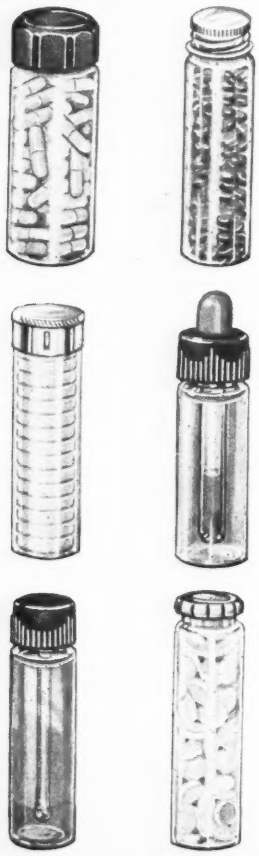
Standard glass-lined reaction kettles Pfaudler developed for severe service *demonstrate* superiority of American equipment.

Pfaudler's series of standard glass-lined steel reaction kettles has been an outstanding development in the chemical equipment field. Hundreds of manufacturers have availed themselves of the advantages, flexibility for service and economy which this equipment presents. Probably there is an operation in your line of production where one of these kettles, ranging in size from 2 to 500 gallons, would prevent corrosion losses or improve the product. Write for catalog No. 715.

GLASS★LINED PFAUDLER EQUIPMENT

GLORIFYING THE TOOTH BRUSH BY PACKAGING IN KIMBLE GLASS





THE first really new idea in toothbrush packaging introduced in the past decade! A tube of oval shaped glass encasing each brush . . . a masterpiece of modern merchandising which scored a decided hit for Dr. West. Sales and profits are still running up into new and unparalleled heights.

Naturally, Kimble looks with justifiable pride on this achievement . . . for the glass "show window" surrounding each one of Dr. West's Toothbrushes is a specially made Kimble product . . . designed and fabricated in Kimble's own plant at Vineland.

Kimble Glass Vials are solving many such packaging problems today. Whether it be a capsule vial, a dropper vial, applicator, "RE-SEAL-IT", a metal or screw-cap vial, Kimble can be counted upon to supply the exact size to meet your requirements. Every Kimble Vial is automatic-machine-made for uniformity and retempered for maximum strength. Their unusually light weight, their sparkling clarity and cleanliness, make them the ideal carriers for sampled and packaged products throughout the drug, pharmaceutical, perfume and kindred industries.

To save time and money, consult with Kimble first. The advice and suggestions offered will cost you nothing.

KIMBLE GLASS COMPANY

VINELAND, NEW JERSEY.

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There's a New Hyacinth Note in JACINTHONE

JACINTHONE is a new, refreshing hyacinth scent developed expressly for compounds. It can be used successfully in conjunction with Lilac, Lily of the Valley, Jasmin, and Sweet Pea types, as well as in all flowery extracts. Jacinthone strengthens these types with a new, engaging note. It will not discolor.

Write us for full information on Jacinthone

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Branches

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THE COMPLETE LINE OF MALLINCKRODT REAGENTS

Maximum limits of impurities printed on label. A.C.S. items indicated on label.

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TALKIE DESCRIBING RESEARCH AND PRODUCTS DEVELOPED SIMULTANEOUSLY SHOWN ON REVOLVING TABLE.

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UNUSUAL USES OF CHEMICALS IN INDUSTRY AND MEDICINE

PHENOBARBITAL

THAT SPARKLES

Mallinckrodt Phenobarbital and Phenobarbital Sodium are made by new processes developed in our own laboratories.

The sparkling appearance of our Phenobarbital U.S.P., the clear solubility without residue, the high melting point,—all indicate greater purity than required by the U.S.P.

And in Phenobarbital Sodium N.N.R., the same clear solubility without residue, in alcohol or water, indicating the absence of harmful impurities . . .

Are proofs of the superiority of these products; that recommend them to pharmaceutical and hospital users.

A sample will be sent for examination.

Other Hypnotics and Sedatives

Ammonium Bromide
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Makers of Fine Medicinal Chemicals

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School of Pharmacy
University of MA

The Drug Institute

THERE is this much to be said in favor of the Drug Institute of America, Inc.,—it is at least a definite move to relieve wholesalers, retailers and manufacturers of a chaotic condition in merchandising of their products. It is a move which will attempt to remove from the drug trade some of its profitless aspect and which will also tend to create a more stable condition under which any firm in any division of the trade will know more definitely what conditions it has to meet.

AND under the head of proper control of merchandising conditions there will first of all come to mind some control of the policies of the various houses so that retail prices below cost will be a thing of the past. With manufacturers, wholesalers and retailers all cooperating, such a step can easily be visualized. Furthermore, distribution through channels other than drug stores can be more definitely controlled so that the retail drug trade will not suffer unduly.

ALL of these steps as taken by the Institute must take into consideration the various types of houses which will compose the Institute if it is to embrace the entire trade. No such Institute can be expected to force members to abandon policies inaugurated by them which have caused their houses to rise to a real place in the industry. Mutual wholesalers, manufacturers who sell direct to retailers, and others who vary from the straight service wholesaler to independent retailer route may be somewhat restricted in their tactics, but they can not be definitely changed.

BUT under control of merchandising there will also come the subject of imitation and counterfeiting. Such an Institute could quite easily control these conditions within proper limits.

AS FAR as presenting a united front regarding drug control legislation, there is also some possibility that the Institute will be able to function, but to just what extent it will be able to handle this situation or in the situation created by the Industrial Recovery Act is very questionable since the Institute admittedly is not composed of firms, but of individuals and therefore does not definitely represent the trade in relations with the government.

The Industrial Recovery Act

ONE thing the new national Industrial Recovery Act has already accomplished—it has certainly multiplied the number of trade associations.

THE power which this bill gives the president, if fully exercised, would extend complete governmental control over industry. Clearly stated are powers which enable him to set wages and hours of labor, control production, license businesses. The fact that these powers will only be exercised in full in rare cases, in certain industries where criminal rackets or vicious trade practices have completely demoralized an industry with large social consequences has been generally accepted. To a major extent the bill will undoubtedly be administered as a permissive power to industries to correct certain trade practices generally recognized both as trade evils and as opposed to the public interest.

IT IS clearly evident that neither the spirit of Congress, of the administration, or of the people of this country are tempered to allow this bill to become the means for autocratic or arbitrary control of industry, prejudicial to the individual conduct of business within certain boundaries restraining generally recognized economic practices.

FOR one instance, it seems probable that the most widely recognized sickness of industry—the sale at below demonstrable cost—will be the first and major effort in administration of this bill. It is possible that control over resale prices may be vested in a business through this act, since in the code of ethics already developed by the lumber industry for submission in Washington this is a feature. If this is accepted, the long and arduous war over the Capper-Kelly Bill may be at end. The administration of this act will be the critical test. Some trade associations are prepared to go to Washington armed with a code of practices neither in the interests of the public, of labor, nor in the interests of their entire industry. They will meet failure, or else public respect for the act will quickly wither.

OTHER groups are forming, based upon narrow selfish divisions of an industry which can only maintain their identity through special interests which are insignificant when viewed on the broad basis of all American industry. Where the capital and labor which these groups represent are small, and where their division is not sharply separated from any broader industry, they will probably find circumstances operating to force them to align with the larger association.

A CRITICAL test is still to come in many trade associations. Where they honestly represent their industry, where they are free from politics which favor one type of manufacturer, or where they have avoided or equalized the clashing of interests of the large and small manufacturer and have respected leaders, then influence for good in their industries will be potent.

WHEN, however, they are dominated by petty spirits seeking selfish privileges, when, in fact, they do not represent their industry or take a broad public viewpoint in their development of a trade code of ethics they cannot, in the interest of the success of this act, be allowed to participate in administration of its provisions.

WE BELIEVE wholeheartedly in the benefits to business which will flow from the application of the Industrial Recovery Act. We do not fear it as a threat to enlightened individualism in business, as a threat to large or small businesses, as a hampering restriction on the conduct or development of honest business.

A New Drug Act

The proposed federal Food and Drugs Act cannot be dismissed as totally bad. There are features of the act which are desirable, although there is one main objection which neither the industry nor the public should accept. The main danger in the bill is the free hand which it gives to the Secretary of Agriculture in controlling the industry and setting up standards.

It is to be expected that, in view of the type of legislation which has been passed by Congress during the emergency session, all legislation might be of the type that gives free and unlimited powers to the administrative official. But it is not right that all proposed legislation should be of this type. Emergency measures affecting economic and trade conditions will pass out of existence when the emergency passes, but the Food and Drugs Act is not emergency legislation and will be with us for no one knows how many years to come.

For this reason it is not in the public interest that the new Food and Drugs Act should give unlimited control to the administrative official. Under certain conditions the public might easily find that the act is being administered purely in the selfish interests of organized medicine, which condition would be as detrimental to the public interest as no regulation at all. From the other point of view it would be just as possible that the administrative official might have the interests of drug manufacturers entirely in his mind. From any angle a bill which leaves too much to the discretion of the administrative official is bad business in the long run. It generally leads to corruption and a general breakdown of the law.

• • •

Your Supplies

Many branches of the supply industries are finding that the promised increase in business resulting from the legal sale of 3.2 beer is being fully realized. In certain sections of the container and equipment industries, plants are working on two or three shifts.

We have had several reports that buyers in our industry are no longer receiving the anxious attention to which they have been accustomed from some of these firms. Manufacturers in this industry find firmer markets, rising prices, uncertain deliveries and a strange and startling lack of service.

During the past ten years, many supply companies have been forced to rebuild in other industries the business lost during the enforcement of prohibition. While some of these companies will find it to their advantage to continue to service and develop these new industries, others will and are now in the process of deserting these new fields to return and specialize in their old markets.

The wise buyer will quickly ascertain which supply companies he can depend upon for future service, and will do business with those companies whose fixed policy is to give proper and adequate attention to the business which they have and can depend upon.

• • •

New and Non-Official

• • •

Hot Weather Reading

"His heart quickened at the soft fragrance of her cheeks. . . But her shoes hid a sorry case of 'athlete's foot.'

"What a shock to think that anyone so dainty, so lovely, so desirable, could have such a repugnant thing as this furtive disease! Have it and neglect it! For night after night she has looked at those dainty toes—watched them break out in tiny blisters—found them stickily moist—felt them itch—seen them peel—and she's never done anything about it."

At least this should be good copy for manufacturers of stomach preparations.

• • •

A Page from the Drug Book

Another of the most recent afflictions to be fastened upon the ladies by freehand copywriters is "Office Hips." The sponsor in this case, however, is not a drug manufacturer but a maker of girdles.

Despite progress on every side, they still seem to believe in a "weaker sex," for there is no talk of men getting "Office Hips."

• • •

The Modern Miracle Man

He takes a crude material at 26 cents a pound which suffers a 40 to 50 per cent loss in refining and then offers the 100 per cent refined at 30 cents and makes a profit.

• • •

Quick, Henry; The Flit

Two little street urchins were watching a barber singe a customer's hair.

"Gee!" said one, "he's hunting them with a light."

• • •

Just a Detail

"This soap contains precious elements the skin itself has and must have to stay youthful, scientists explain."

Thus opening up that old familiar subject of skin penetration.

• • •

Or that They're a Drug on the Market

Cosmetics are now included in the food and drugs act, thus confirming the secret belief of the softer sex that with the right make-up they look sweet enough to eat.

• • •

It's a Good Old Vehicle

Now that Junis has been added to Pepsodent and to Pepsodent Antiseptic, everybody's beginning to wonder just how much the Fresh Air Taxicab will carry before it's through.

• • •

Ten Years Ago

From our pages, June, 1923

John and E. Sturge, Ltd., Birmingham, England, began business 100 years ago in Bewdley, Worcestershire, England.

Fritzsche Brothers, New York, have opened a branch office at 68 Lombard St., Toronto, Canada.

A majority of the trade associations, probably 300 out of 400 engaged in progressive work, have carefully avoided acts which might be construed as violations of the Sherman law. It has been pointed out repeatedly that it is illegal to conspire to enhance prices; to curtail production; to suppress competition; to arbitrarily establish the cost of any item entering into cost of production.

The United States Supreme Court, in a decision handed down Monday, denied the Federal Trade Commission the right of appeal against the decision of the Circuit Court of Appeals for the New York district, rendered March 13, in the Mennen case. The Circuit Court ruled that the Mennen company had a right to choose its customers and to refuse to sell any class direct if it chose or to refuse to sell pools as wholesalers.

Drug Institute Makes its Bow

An all-inclusive association for manufacturers, wholesalers, and retailers is inaugurated to handle many of the trade evils causing unsettlement in the drug trade. Some of its possibilities and limitations are indicated.

ORIGINALLY proposed apparently as a move to stabilize prices throughout the wholesale and retail drug trade, and having its instigation, secretly for a time, from Charles Walgreen, drug chain store head, through his man Wheeler Sammons, The Drug Institute of America, Inc. broke into the headlines under a general release date of May 29, largely activated by the Industry Recovery Bill, and the proposal to rewrite the federal Food and Drugs Act. These two startling developments gave promotors of the Institute an excellent opportunity to sell the institute to an uncertain and sorely harassed industry which imagined that anything might be hanging over its head and that this might be an organization to remove the danger and give the industry confidence.

The Drug Institute idea was taken up by A. Keifer Mayer, of Keifer-Stewart Company, Indianapolis, service wholesaler who also owns a chain of stores. It was first presented openly at the Spring meeting of the National Wholesale Druggists Association, at St. Louis, in April. In the first week of May a meeting of invited manufacturers, wholesalers, and retailers was held in the New York Hotel for five hours. Following this a committee visited the attorney's office and the institute was incorporated. The following week A. Keifer Mayer presented the idea to the American Drug Manufacturers Association, at the annual meeting in Hot Springs, Va. This association took no action on the idea at the meeting, but on June 9, the executive committee of the association in meeting at New York approved the Institute with the following resolution:

"Recognizing that demoralized conditions prevail in the drug trade, particularly in the wholesale and retail branches, the Executive Committee of the American Drug Manufacturers Association has given careful consideration to the Drug Institute of America, Inc., and the consensus of opinion is that the project is a step in the right direction toward correcting these conditions, and merits united support."

Two weeks later, Mr. Mayer presented the idea to the Proprietary Association, at the annual meeting in New York. This association adopted a resolution of its executive committee endorsing the institute and urging all its members to join, and urging that the members get their suppliers of raw materials and containers to join.

Following this the plan and its officials were generally released for publication, showing that the officers and directors of the association had been elected prior to the drive for members so that the officials of the institute represent the choice of its founders and not necessarily of the membership which is to follow to supply the funds to carry out the institute's plans as laid down by these directors.

Many of the directors are obvious, in that they are men who are always actively engaged in any movement which points toward resale price stabilization and relief from difficulties of the retail branch of the trade. Beside this, there are representatives from practically every branch of the trade.

The movement has the endorsement of every branch of the industry at least in its aims. The only question that is being asked is whether the Institute as organized can accomplish. However, manufacturers, wholesalers and retailers know that they all need real cooperation on the part of each other, and most of them are willing to try the Institute and see if it can bring about fair dealing among the entire group that constitutes the drug trade.

The Institute is made up of individuals and not firms. Thus there is no possibility of any number of firms getting together to raise prices. The problem before the Institute will not be a raising of prices, but rather a real attempt on the part of the manufacturers, wholesalers and retailers to stop and eliminate as far as possible the price cutters who do their business by selling nationally advertised goods at prices which no profit or result in a loss.

Naturally the Institute has not been accepted fully in all branches of the trade. There are some who question just what it can accomplish; others are afraid of such an organization becoming too powerful ending in some individual establishing himself as a czar, with the industry being unable to break his power even though it is used in the wrong direction.

The question of the Institute representing the drug trade in conference with the dictator named to ad-

minister the new industry recovery act is problematical to some. One reason for this is that there is no guarantee just what the dictator will consider should be contained in a code of ethics for any industry. It is thought that the dictator might limit the code to wages and hours of employment for labor. There is no assurance that prices can be agreed upon, or that any of the other problems can be solved by having the government accept the ideas of the large majority of the industry.

Furthermore, some have remarked that as far as the industry recovery act is concerned, the Institute might possibly fail of recognition by the government for the very reason that its members are not the firms of the industry. Furthermore, some are of the opinion that since independent retailers do not operate in interstate commerce they are not subject to the act and should hardly constitute a part of any organization working under the industry recovery act. Also there is the question of the retailers—if they do become a part of the Institute to work with the government—being asked by the government about the hours of labor and the wages of their pharmacists and clerks to the end that the government might insist that a change in this direction be made.

Indicative of the question of the Institute representing the entire drug trade with reference to the new act, is the large number of new associations being formed within the trade. It is understood that a movement is afoot to organize those wholesale druggists who are not members of the N. W. D. A. or the F. W. D. A. One new association of retailers in New York City has been incorporated, and another in Buffalo.

Furthermore, there are many suppliers of packages and raw materials to the drug trade who will be asked to join the Drug Institute. Naturally these people will be inclined to join and probably will join. But these suppliers will also be members of associations of their own respective industries, and these latter associations will more nearly represent them in Washington than will the Drug Institute. In fact it can be said that if there is any choice between the two associations, these manufacturers will be forced to choose the association in their own industries rather than the Drug Institute.

The Institute is composed of ten different classes of membership as follows:

The membership of the Institute will be drawn from the following divisions of the industry:

1. Manufacturers of pharmaceutical, drug and chemical products.
2. Manufacturers of trade-marked medicinal products.
3. Manufacturers of toilet articles.
4. Manufacturers of cosmetics.
5. Manufacturers of other products, generally distributed through the drug trade.
6. Service wholesalers dealing in products generally handled by drug stores.
7. Mutual and other wholesalers dealing in products generally handled by drug stores.
8. Chain retail drug stores.
9. Independent drug stores.
10. Other retail outlets handling products in the drug, toilet or cosmetic fields.
11. Officers and employees of trade associations connected with the drug industry.
12. Deans and members of faculties of Colleges of Pharmacy, and officers of pharmaceutical associations, and members of learned, scientific, public or professional organizations.

The board of directors will include twenty representatives of the various divisions of membership, eight elected from the membership at large and one from outside the active membership. A partial list of the directors, so far selected, follows:

Directors-at-Large

S. Bayard Colgate, President, Colgate-Palmolive-Peet Company, Chicago, Ill.; G. M. Gibbs, President, Peoples Drug Company, Washington, D. C.; R. W. Johnson, President, Johnson & Johnson, New Brunswick, N. J.; Fred C. Michaels, President, McKesson-Langley-Michaels Drug Company, San Francisco, California; Harry Miller, Retail Druggist, New Rochelle, N. Y.; Carleton H. Palmer, President, E. R. Squibb & Sons, New York, N. Y.; G. A. Pfeiffer, President, Wm. R. Warner Company, New York, N. Y.; Carl Weeks, President, Armand Company, Des Moines, Iowa.

Directors Representing Various Divisions of the Drug Industry

Group 1. George Merck, President, Merck & Company, Rahway, N. J.; Charles J. Lynn, Vice President and General Manager, Eli Lilly & Company, Indianapolis, Ind.

Group 2. Dr. Wm. E. Weiss, Vice President and General Manager, Drug, Inc., New York, N. Y.; A. H. Beardsley, President, Miles Laboratories Inc., Elkhart, Ind.

Group 3. J. L. Johnston, President, Lambert Company, St. Louis, Mo.; Edw. S. Plaut, President, Lehn & Fink, Inc., New York, N. Y.

Group 4. Northam Warren, President, Northam Warren, Inc., New York, N. Y.; Ralph Aronson, President, Bourjois, Inc., New York, N. Y.

Group 5. Ross Treseder, Vice President, Coca Cola Company, Atlanta, Ga.; J. T. Woodside, President, The Western Company, Chicago, Ill.

Group 6. A. Kiefer Mayer, Vice President, Kieferstewart Drug Company, Indianapolis, Ind.; George Doerr, President, McKesson-Minneapolis Drug Company, Minneapolis, Minn.

Group 7. Harry Krupp, President, Philadelphia Wholesale Drug Company, Philadelphia, Pa.; F. T. Roosa, President, Mutual Drug Company, Cleveland, Ohio.

(Continued on page 590)

A New Food and Drugs Act

Changes in the Proposed Bill

Drugs considered dangerous to health are deemed adulterated.

Secretary of Agriculture may prescribe methods of testing U. S. P. or N. F. products when such tests are not given, or may add to tests when he so desires.

Cosmetics are included in the act and may be deemed adulterated if considered dangerous to health, or if they contain poisonous or deleterious substances.

Drugs and cosmetics must bear content statement on label.

Labels of drugs may bear names of diseases for which products are not specifics, but are merely palliatives, if a statement that the drug is not a cure is made.

Drug is misbranded if the label contains statement contrary to general medical opinion.

Drug is misbranded if not packaged or labeled in form and manner prescribed by Secretary of Agriculture for the prevention of deterioration of those drugs subject to deterioration.

Drug is misbranded if the container is made, formed or filled to mislead purchasers; if it is an imitation of another drug; if it is offered for sale under the name of another drug.

Antiseptics and germicides must give on labels for each use the method and duration of application necessary to kill all micro-organisms in the vegetive or other active form with which it comes in contact when so used; or there must be given on label the specific micro-organisms which the product affects together with the conditions, duration of application under which the product kills all such micro-organisms.

Drug and cosmetic advertising is regulated so that statements must conform to facts as in the case of label statements.

Drug advertising is further regulated so that no advertising to other than the medical and pharmacological professions is allowed for products claimed to have any effect upon any of a long list of diseases written in the bill; and further empowering the Secretary of Agriculture, as he sees fit, to add to the list of diseases in which self-medication is dangerous, and prohibiting consumer advertising of products claimed to affect such diseases.

Permits are required for factories producing those classes of drugs and cosmetics which Secretary of Agriculture deems may be injurious to health, when the Secretary feels that such danger cannot be ascertained after such articles have entered interstate commerce.

Inspectors of the department are to inspect drug and cosmetic factories with the permission of the owners. District courts are granted power of injunction against shipment of goods from those factories which do not permit inspection.

Manufacturers may request inspection of their plants at cost, and then use on labels fact that they have been inspected by Government and found to be in conformity with law.

Secretary of Agriculture will draw up entire regulations for enforcement of the act with the exception of that relating to imports in which the Secretary of Treasury shall concur. Regulations for the present act are drawn up by the three Secretaries of Agriculture, Commerce, and Treasury.

THE long rumored new federal Food and Drugs Act was finally drafted by the administration in Washington and wassent to Congress by Secretary of Agriculture, Henry A. Wallace on June 1, with the request that the new bill be enacted. Secretary Wallace said he was acting at the request of President Roosevelt. However, the President does not regard the new act as emergency legislation to be rushed through at the extra session of Congress, so that the bill will not be taken up in Congress until the regular session which convenes the first week in December.

Perhaps the most important fact from the point of view of the manufacturers of ethical products is the fact that the so-called variation clause which permits the marketing of products bearing U. S. P. and N. F. titles which vary from the official products in some manner is continued in the law.

Many important changes which have been made are listed here. Other changes include heavier penalties for violations of the act, a more specific law in which many loopholes are eliminated.

Secretary of Agriculture would have far greater powers than he has under the present law, many things being left to his discretion.

The law will not come effective until six months after it is enacted.

The complete text of the law follows:

A Bill

To prevent the manufacture, shipment, and sale of adulterated or misbranded foods, drugs, and cosmetics, and to regulate traffic therein; to prevent the false advertisement of food, drugs, and cosmetics; and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that this Act may be cited as the "Federal Food and Drugs Act."

Definitions

Sec. 2. As used in this Act, unless the context otherwise indicates:

(a) The term "food" includes all substances and preparations used for, or entering into the composition of; food, drink, confectionery, or condiment for man or other animals.

(b) The term "drug" includes (1) all substances and preparations recognized in the United States Pharmacopoeia or National Formulary or supplements thereto; and (2) all substances, preparations, and devices intended for use in the cure, mitigation, treatment, or prevention of disease in man or other animals; and (3) all substances and preparations, other than food, and all devices, intended to affect the structure or any function of the body of man or other animals.

(c) The term "cosmetic" includes all substances and preparations intended for cleansing, or altering the appearance of, or promoting the attractiveness of, the person. Except as indicated in paragraph (b) (3) of this section, the definitions of food, drug, and cosmetic shall not be construed as mutually exclusive.

(d) The term "Territory" means any Territory or possession of the United States.

(e) The term "interstate commerce" means (1) commerce between any State or Territory and any place outside thereof, or between points within the same State or Territory but through any place outside thereof, and (2) commerce and manufacture within the District of Columbia or the Canal Zone or within any Territory not organized with a legislative body.

(f) The term "person" includes individual, partnership, corporation, and association.

(g) The term "Secretary" means the Secretary of Agriculture.

(h) The term "label" means the principal label or labels (1) upon the immediate container of any food, drug, or cosmetic, and (2) upon the outside container or wrapper, if any there be, of the retail package of any food, drug, or cosmetic.

(i) The term "labeling" includes all labels and other written, printed, and graphic matter, in any form whatsoever, accompanying any food, drug, or cosmetic.

(j) The term "advertisment" includes all representations of fact or opinion disseminated in any manner or by any means other than by the labeling.

(k) The term "in package form" includes wrapped meats enclosed in paper or other materials as prepared by the manufacturers thereof for sale.

Adulteration of Food

Sec. 3. A food shall be deemed to be adulterated:

(a) (1) If it is or may be dangerous to health; or (2) if it bears or contains any added poisonous or added deleterious substance prohibited, or in excess of the limits of tolerance prescribed, by regulations as hereinafter provided; or (3) if it consists in whole or in part of any filthy, putrid, or decomposed substance; or (4) if it has been prepared, packed, or held under unsanitary conditions whereby it may have become contaminated with filth; or (5) if it is the product of a diseased animal or of an animal which has died otherwise than by slaughter; or (6) if its container is composed of any poisonous or deleterious substance which may by contamination render the contents injurious to health.

(b) (1) If any valuable constituent has been in whole or in part abstracted therefrom; or (2) if any substance has been substituted wholly or in part therefor; or (3) if damage or inferiority has been concealed in any manner; or (4) if any substance has been mixed or packed therewith so as to increase its bulk or weight, or reduce its quality or strength, or create a deceptive appearance.

(c) If it is confectionery and bears or contains any alcohol, resinous glaze, or nonnutritive substance except coloring and flavoring.

(d) If it contains a coal tar color other than one from a batch that has been certified by the Secretary in accordance with regulations as hereinafter provided.

Adulteration of Drugs

Sec. 4. A drug shall be deemed to be adulterated:

(a) If it is or may be dangerous to health under the conditions of use prescribed in the labeling thereof.

(b) If its name is the same as or simulates a name recognized in the United States Pharmacopoeia or National Formulary or in any supplement thereto, official at the time the drug is introduced into interstate commerce, or if it purports to be such a drug, and it fails to meet the definition, formula, and description set forth therein, or differs from the standard of strength, quality, or purity as determined by the tests or methods of assay set forth therein; except that whenever tests or methods of assay have not been prescribed therein or such tests or methods of assay as are prescribed are found by the Secretary to be insufficient, he is hereby authorized to prescribe by regulations tests or methods of assay for determining whether or not such drug complies with such standards. No drug shall be deemed to be adulterated under this paragraph if its label bears, in the manner and form prescribed by regulations of the Secretary, a statement indicating wherein its strength, quality, and purity differ from the standard of strength, quality and purity set forth in the United States Pharmacopoeia or National Formulary or in any supplement thereto, official at the time the drug is introduced into interstate commerce, as determined by the tests or methods of assay applicable under this paragraph.

(c) If it is not subject to the provisions of paragraph (b) of this section and its identity or strength differs from, or its purity or quality falls below, that which it purports or is represented to possess.

(d) (1) If any substance has been mixed or packed therewith so as to reduce its quality or strength; or (2) if any substance has been substituted wholly or in part therefor.

Adulteration of Cosmetics

Sec. 5. A cosmetic shall be deemed to be adulterated:

(a) If it is or may be injurious to the user under the conditions of use prescribed in the labeling thereof, or under such conditions of use as are customary or usual.

(b) If it bears or contains any poisonous or deleterious ingredient prohibited, or in excess of the limits of tolerance prescribed, by regulations as hereinafter provided.

Misbranding—General

Sec. 6. A food, drug, or cosmetic shall be deemed to be misbranded:

(a) If its labeling is in any particular false, or by ambiguity or inference creates a misleading impression regarding any food, drug, or cosmetic.

(b) If in package form and it fails to bear a label containing: (1) the name and place of business of the manufacturer, packer, seller, or distributor; and (2) an accurate statement of the quantity of the contents in such terms of weight, measure, or numerical count as may be prescribed by regulations of the Secretary: Provided, that under subdivision (2) of this paragraph reasonable variations shall be permitted, and exemptions as to small packages of foods and cosmetics shall be established, by regulations prescribed by the Secretary; and provided further, That such classes of canned foods as the Secretary finds, after notice and hearing, are,

(*Continued on page 548*)

Preservatives for Cosmetics

By Dr. Erich Boehm, Berlin

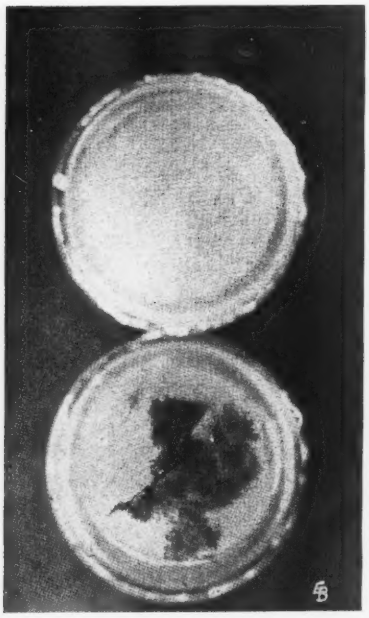
TH. SABALITCHKA and his co-workers have thoroughly investigated and reported upon the relationship between the chemical constitution of carbocyclic acids and their derivatives[1] and their physico-chemical behavior[2] their growth-inhibiting and killing effects upon micro-organisms.

These studies first established the strong anti-microbic effect of various esters of p-hydroxy benzoic acid. Numerous investigators: Bechtel[3], Bonde[4], Buchgraber[5], Eggensperger[6], Eschenbrenner[7], Klein[8], Leschke[9], Rosenberg[10] and others have further confirmed these specific properties. Soon after the discovery that these esters were strong preservatives and antiseptics they found wide industrial application under certain trade names[11].

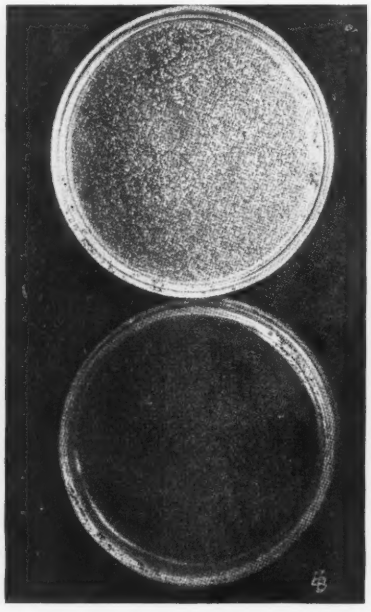
The absolute harmlessness of the esters was determined by Schubel and Manger[12], Kohn and Eschenbrenner[13]. Their indifference and freedom from irritating properties was also proved by numerous investigators.

In contrast to other preservatives and antiseptics, the virtues of these new compounds are supplemented by other desirable properties for the intended uses. Former substances may be rendered inactive because of their reactions with components of the product, frequently preventing proper blending. Particularly, in many instances they cause turbidity and separation through coagulation of albuminous materials as well as discoloration, the last phenomenon making their use impossible. In the use of some of these substances the material acquires a characteristic, unpleasant odor. Moreover, most of the hitherto used chemicals are poisons and irritants and may therefore cause injury when used on or in human bodies. In contrast, the antiseptic esters being considered here are practically neutral, odorless, free from any irritating effect, and absolutely harmless.

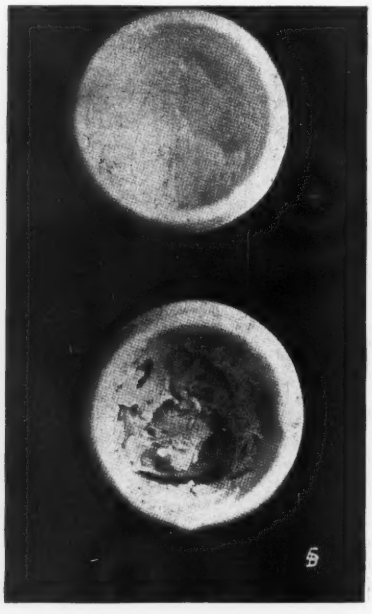
Cosmetics like the underlying pharmaceutical-medicinal and chemical-technical preparations, as well as foodstuffs, in most cases contain various bacteria of decomposition. Even ordinary distilled water contains a large number of various microorganisms, as is shown by the occurrence of turbidity and flocculation. In most cases, however, and this is worse, there are no



Hair fixative (tragacanth-gelatin jelly)—left for 3 months in glasses under unfavorable conditions.
Above: with 0.15% propyl p-hydroxybenzoate. Remained unchanged.
Below: the same without the addition. Largely liquid, growth of Penicillium and Rhizopus types on the surface, putrid odor, discoloration of the mucilage.



Above: Agar plate with large number of germs of putrefaction and air bacteria isolated from a commercial toilet water containing 15% alcohol.
Below: Agar plate with same toilet water, after 0.15% methyl ester and 0.1% propyl ester had been added. Inoculation followed after standing 48 hours, at end of which time all germs had been killed.



Skin cream with 10% fat—left in porcelain jars for 1½ years under unfavorable conditions.
Above: with 0.1% methyl p-hydroxybenzoate. The sample remained faultless and exhibited no rancidity.
Below: the same without the addition. Heavy growth of various mold forms and spots. Also strongly rancid.

visible changes, the germs carry their latent life through water or aqueous solutions and develop at their earliest opportunity. Even alcohol, benzine and ether are not as sterile as they are supposed to be. This was made plain recently in the sensational papers of Kuhn-Dombrowsky[14] and Knorr[15]. Although the substances themselves may be sterile, they take up germs in the containers in which they are shipped and stored; it had never been thought necessary to sterilize these containers, general belief being that the contents would insure sterility. This is by no means the case. Kuhn and Dombrowsky investigated 40 alcohol samples, of which only half were found to be sterile. These tests were made with 70, 80, 90, 96 per cent. and absolute alcohol as well as methyl alcohol and alcoholic iodine solutions. Investigations of benzine containers showed the presence of Staphylococcus albus, Actinomyces, yeasts, Subtilis and swarms of spore formers. The presence of Staphylococcus albus, Mesentericus ruber and Subtilis, Streptococci and two spore formers was demonstrated in ether. Both authors set up the requirement that in disinfecting the hands, in the washing of surgical equipment, for soaking sterile sewing materials, especially catgut, only redistilled, germ-free alcohol should be used[16]. In his investigations on the germ content of alcohols, Knorr concludes that for medical use, distilled alcohol should be collected only in sterile containers to assure a germ-free product. In the preparation of diluted alcohol the same author also shows that the water to be mixed with the alcohol should be germ-free according to D. A. B. 6 requirements.

These findings have particular application to cosmetics. Dilute alcohol finds widespread use in eye-washes, toilet waters and other antiseptics. Here, also, manufacture requires efficient and non-irritating antiseptics, such as the esters of p-hydroxybenzoic acid.

Antiseptics for cosmetics must have the following properties:

1. The developed inhibiting effect must be lasting and therefore must not depend upon volatile materials whose effects disappear after evaporation.

2. The antiseptic must be practically neutral so that it will not be made inactive by combination with another ingredient.

3. It must be resistant to the acid and alkali concentration in the cosmetic preparation over a long period of time so that it will not decompose.

4. It should in no way effect the reaction, odor, taste, color, and consistency of the materials and should cause no turbidity, bleaching, hardening, precipitation or flocculation.

5. It should not irritate either the skin or the mucous membrane and should be non-poisonous for use in mixtures intended for internal use.

6. It should be indifferent to metallic salts (aluminum, zinc, iron) and to alloys comprising tube materials, tin foil, etc.

7. It must in no way affect the characteristic odor of essential oils, flavors and perfume compositions.

8. It must be highly effective against micro-organisms.

These high requirements were not completely fulfilled by any of the usual preservatives.

The present antiseptic esters were the first suitable materials discovered which had none of the disturbing properties mentioned. The special suitability of these substances as preservatives and antiseptics could in no way be foreseen. According to the data in the literature as well as the researches of Th. Sabalitchka, p-hydroxybenzoic acid itself has relatively little effect upon micro-organisms, while o-hydroxybenzoic acid (salicylic acid) has a stronger effect. The esters of both acids, however, have almost directly opposite effects upon bacteria. Moreover, the o-hydroxybenzoic esters have distinctive odors and are irritating while the properties of p-hydroxy compounds are lack of taste and odor, no irritation, pure white color, comparatively lasting activity and stability and absolute non-toxicity.

It is only possible, within the limits of this work, to discuss approximately all the literature, the numerous research results and practical knowledge in preservation with these recent compounds.

At first, the preservative effect of the esters was ascertained with numerous foodstuffs. The Imperial Board of Health published data concerning the use of these esters as preservatives for various foods[17]. Later, various pharmaceutical-medicinal materials were thoroughly investigated. Several years ago, with H. Jegliski[18] I proved the feasibility of preserving Ungt. glycerini D. A. B. 6. With an addition of 0.15 per cent of the methyl ester or 0.05 per cent of propyl ester, the salve can be preserved. Gelatin containing these amounts of the preservatives remained unaffected thruout a four-and-one-half month test period. Later we obtained the same results with artificial innoculations with B. fluorescens, B. coli, Proteus vulgaris, Mucor and some very resistant yeast strains. With additions of 0.125 per cent. of the methyl ester or 0.05 per cent of the propyl ester we found complete stability. The test time was twelve months; at the end of this period we proved complete killing of the injected micro-organisms by means of the added antiseptic. I obtained the same results[19] in preservation experiments with tragacanth, acacia and gelatin jellies. Augustin[20], Schumacher[21], Wagner[22], Sabalitschka[23] and others confirmed the preservative and antiseptic effect of p-hydroxybenzoic esters with various cosmetic preparations. For a long time now these compounds have been utilized with best results for the preservation of pharmaceutical and cosmetic preparations, such as suppositories, malt extracts, Ungt. glycerini, confections, emulsions, fats, oils, salves, creams, aqueous and solid drug extracts, aqueous solutions, mucilages, jellies, etc.

The preservative esters are also included in the new official listings of various nations as preservatives for certain medical preparations, as in the Commentary to the German Pharmacopoeia, 6th edition[24] and the forth-

(Continued on page 591)

Essential Oil Flavors

By K. E Langwill

In the discussion of the second type of flavors which includes essential oils and natural solid, synthetic and imitation flavors, special consideration will be given the essential oils. These odoriferous bodies differ so widely from one another both in physical properties and composition that it is impossible to classify them into distinct separate groups. Their occurrence in the most varied parts of the plant anatomy is presented in the following table:—

Flower	Rose, carnation, clove
Leaves	Peppermint, lavender
Root	Angelica, sassafras
Seeds	Caraway, bitter almonds, anise
Bark	Cinnamon, cassia
Fruit	Lemon, lime, orange
Woods	Cedar, santal
Gums or Oleo-resinous exudations	Myrrh, Peru balsam, storax, tolu

In general, the essential oils are insoluble in water, but soluble in most organic solvents. A notable exception to this rule is that of the orange flower. The water portion of the distillate carries the true fragrance of the orange flower rather than the oil of neroli. Some oils are less dense than water, while a few, like oil of cinnamon, are heavier. Many undergo oxidation upon exposure to air and light; hence, it is usual for the manufacturer to send out orange and lemon oils in copper vessels, the top of which is sealed with solder. A high refractive index is characteristic of essential oils and its determination is one of the most important means of ascertaining the purity of the oil. A few consist almost entirely of one definite compound, such as oil of wintergreen, which is nearly pure methyl salicylate, but the majority are mixtures of several different substances.

Of the large number of substances constituting essential oils, the most frequently encountered is the class of volatile hydrocarbons known as the terpenes. These are considered as inert and worthless as a flavoring medium; in fact, the deterioration of the oil is mainly due to the oxidation of these compounds. When exposed to the action of light and heat with access to air, they quickly develop an odor and taste of turpentine.

Lemon oil contains over ninety per cent of terpenes as do the other citrus oils. These oils as well as many of the other essential oils may be concentrated by removing the terpenes and this is generally effected by vacuum distillation. If this process is carefully controlled, the odor of the resulting oil is not impaired. Another method used to obtain terpeneless oils is known as the shaking out process. It consists of placing the oil and dilute alcohol in an air tight container and agitating for considerable length of time. Then allowing the mixture to stand until the oily portion rises to the top, when the lower stratum may be drawn off and filtered to remove globules of oil held in suspension. The oily residue is generally subjected to a second churning process in order to remove the entire amount of delicate flavoring constituents.

Terpeneless oils possess many advantages over the ordinary essential oils of commerce. They are much more soluble in dilute alcohol and when considering the price of this solvent this fact is of utmost importance. These oils do not readily decompose with age.

The manufacturing processes employed for the separation of the natural odoriferous materials may be grouped under the three headings of distillation expression and extraction. Distillation is applicable to a large number of substances as geranium, lavender, neroli, rose and sandalwood. This process is based on the principle that while the odoriferous substances are insoluble in water, their vapor tension is reduced on being treated with steam so that in a still they may by carried over by a current of steam into a condenser where the water and oil vapors are condensed. On standing, the distillate separates into two layers, an aqueous and an oily layer, the oil floating on top or sinking through the water according to its density.

The process of expression is of value only in those cases where the original substances contain a considerable amount of oil. Its application is best represented by the preparation of melon oil or any of the oils containing in the rind or skin of the fruits belonging to the citron family. In Sicily and southern Italy the sponge method is largely employed. One man takes a lemon in his hand and with three rapid strokes of a large knife cuts off nearly all the peel in three slices. These slices are passed to a second workman who sits on a low chair with a common sponge in his hand. With the other hand he presses the slice of peel against the sponge, pressing the edges of the peel only with his fingers, the object being to press the convex piece of lemon peel as nearly flat as possible, thus liberating the oil. The sponges are squeezed periodically and the oil collected in shallow earthenware bowls placed in front of the men. The oils from the different bowls are mixed and allowed to stand until the juice has separated at the bottom. Afterwards it is filtered and stored in coppers. Any residues that may contain oil are diluted with water and the oil recovered by dis-

tillation. Such products are always of an inferior quality.

One type of machine used to obtain the same results consists of a hollow iron cylinder with sieve-like openings in its circumference. The material is placed in it and the ram of a hydraulic press enters the cylinder and compresses the material. The fluid escapes through the perforations and the residue forms a compact woody cake, which is then freed from oil by steam distillation or extraction by solvents. The mixture of oil and water which escapes is allowed to settle and the water decanted from the oil in a separating vessel.

The method of extraction with volatile solvents is used to extract oil from flowers only, because other parts of the plants would yield to the solvents large quantities of extractive matter which could not be removed from the oil and would considerably detract from the delicate odor desired. This method involves the use of a process known as continuous extraction, whereby the solvent used, such as petroleum ether, benzene, acetone or carbon tetrachloride, after passing through the material, is volatilized, then condensed and again passed through the material, until the entire charge is exhausted. At each passage of the solvent, a portion of the volatile oil is dissolved and left behind. The advantage of this method lies in the fact that only a relatively small quantity of the solvent has to be finally removed from the extracted oil.

An older extraction process is that of maceration. The flowers are immersed in a bath of pure neutral fat, such as tallow, lard or olive oil, which is maintained at a temperature of 65°-70° C. by means of a water bath. Fresh flowers are added as the perfume of a previous charge is exhausted, and the spent flowers are removed. This process is repeated until the desired strength of perfume is attained. When a liquid fat like olive oil is used for extraction, the product is termed "huile antique." These fatty vehicles are sometimes extracted with alcohol which dissolves the essential oil but not the fat and the resulting product forms the "extraits" or floral pomade washings of the perfume trade.

Enfleurage is a method of extraction at ordinary temperatures which is much employed in southern France. The fats most commonly used are lard or beef suet, or a mixture of the two in the proportion of two of the former to one of the latter. They are specially purified and washed with alum solution, afterwards being preserved by digestion with benzoin or tolu. The fat is spread to a thickness of about one-quarter of an inch on glass plates three feet by 2 feet arranged in tiers one above the other. Flowers are sprinkled on the plates and left there for one to three days, when fresh flowers are substituted for the old ones, until the fat on the plates has absorbed sufficient scent to make a strong pomade.

This process is cumbrous and tedious and has been modified by slowly passing a current of air through the flowers contained in a vessel over the successive plates of fat. The absorption of scent is rapidly effected and the flowers do not come into actual contact with the fat on the plates. Moist air extracts the odors more effectively, therefore, some suitable means of humidifying the air is of advantage.

The essential oils have an extensive range of uses but the principal ones are their various applications in perfumery. The next important part played by them is in connection with food. The value of flavoring herbs, condiments and spices is due to these volatile oils. They are used in flavoring liqueurs, aerated beverages and other drinks. They also find extensive use in medicine. In no class of toilet preparations other than toothpastes and mouth washes are the essential oils more largely used for their antiseptic and hygienic value. They provide the best means by which the teeth and mouth may be kept clean and healthy.

The following three formulas represent flavors to be used in preparing an herb toothpaste, a wintergreen and a cherry toothpaste.

1.

Oil of arnica	1 part
Hyssop oil	1 "
Oil of thyme	1 "
Juniper-berry oil	1 "
Calamus oil	2 parts
Sage oil	3 "
Spearmint oil	5 "
Peppermint oil	5 "

2.

Oil of wintergreen	8 parts
Peppermint oil	10 "
Aniseed oil	10 "
Cinnamon oil	10 "
Oil of cloves	15 "

3.

Oil of cinnamon	4 parts
Anethol	8 "
Oil of cloves	4 "
Oil of bergamot	4 "

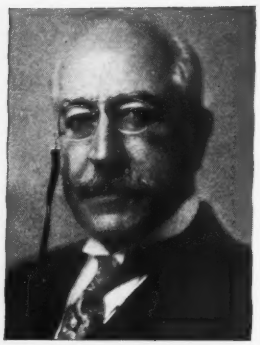
Two flavors of the antiseptic type which may be used either in toothpastes or mouth washes are as follows:

1.

Oil of anise	½ part
Eucalyptol	1 "
Menthol	1 "
Methyl salicylate	½ "

2.

Oil of anise	4 parts
Oil of cassia	2 "
Oil of clove	5 "
Oil of eucalyptus	8 "
Oil of lavender	4 "
Oil of peppermint	9 "
Oil of wintergreen	12 "
Menthol	12 "



Dr. Marston T. Bogert

Autoxidation of Aldehydes

Part II (Conclusion)

Dr. Everett G. McDonough

By Marston T. Bogert and Everett G. McDonough[1]

VII Dark Autoxidation Rates of Binary Mixtures of Aldehydes

The purpose of these experiments was to determine the influence of one aldehyde upon the autoxidation rate of another, a problem of considerable interest to the blender of perfumes. The results appear in Tables VI-A and VI-B.

The rate given in the case of each mixture is the maximum number of cc. of oxygen absorbed per minute. The first column shows the number of cc. of each aldehyde (A and B) in the mixture used and the horizontal rows of figures are the autoxidation rates corresponding to these proportions. The aldehydes represented by A and B in each case are given at the left.

These tables illustrate (1) the effect of various other aldehydes upon the autoxidation rate of a given aldehyde A, and (2) the effect of the addition of this aldehyde A upon the autoxidation rate of these other aldehydes.

The following examples, taken from the tables, will suffice:

(1) *Benzaldehyde's* oxidation velocity was increased very slightly by heptaldehyde and the only aldehyde to increase it markedly was *alpha*-amylcinnamaldehyde; the addition of any other aldehyde decreased it. Similarly, the addition of benzaldehyde to any other aldehyde, lowered the oxidation velocity of the former; except in the case of the *alpha*-amylcinnamaldehyde, which was unaffected.

(2) The autoxidation rate of *n-heptaldehyde* was raised by the addition of cinnamaldehyde or *alpha*-amyl-cinnamaldehyde, but lowered by the addition of any other aldehyde. The addition of heptaldehyde itself to another aldehyde resulted in speeding up the autoxidation of benzaldehyde or of citronellal, retarded that of phenylacetaldehyde, and was without effect upon the others used.

(3) In the case of *alpha-amylcinnamaldehyde*, its oxidation velocity was increased by the addition only of cinnamaldehyde. The addition of phenylacetaldehyde or hydrocinnamaldehyde slowed up the rate, while addition of vanillin or salicylaldehyde checked the autoxidation completely under the conditions of the experiment. On the other hand, its addition to another aldehyde caused an increase in the latter's oxidation

TABLE VI-A

Dark Autoxidation Rates of Binary Aldehyde Mixtures

No.			*A 4.0 B 0.0*	*3.5 0.5*	*0.5 3.5*	*0.0 4.0*
1	A	Benzaldehyde	.15	.16	.60	2.00
	B	Heptaldehyde				
2	A	*a*-Amylcinnamaldehyde	3.60	3.60	16.00	2.60
	B	Heptaldehyde				
3	A	Cinnamaldehyde	2.00	2.00	13.60	2.60
	B	Heptaldehyde				
4	A	Benzaldehyde	.20	9.40	3.60	3.60
	B	*a*-Amylcinnamaldehyde				
5	A	Benzaldehyde	.20	.18	1.90	2.10
	B	Cinnamaldehyde				
6	A	*a*-Amylcinnamaldehyde	3.80	6.50	3.00	2.10
	B	Cinnamaldehyde				
7	A	Benzaldehyde	.20	.042	.048	.40
	B	Hydroxycitronellal				
8	A	Benzaldehyde	.20	.025	.07	.06
	B	Citral				
9	A	Cinnamaldehyde	2.00	1.17	.12	.06
	B	Citral				
10	A	Heptaldehyde	2.60	.045	.0030	.0025
	B	Citronellal				
11	A	Benzaldehyde	.20	.04	.03	.35
	B	Phenylacetaldehyde				
12	A	Benzaldehyde	.20	.10	.02	.036
	B	Hydrocinnamaldehyde				
13	A	Heptaldehyde	2.60	1.74	.04	.35
	B	Phenylacetaldehyde				
14	A	Heptaldehyde	2.60	.42	.04	.04
	B	Hydrocinnamaldehyde				
15	A	*a*-Amylcinnamaldehyde	3.70	2.60	.70	.34
	B	Phenylacetaldehyde				
16	A	*a*-Amylcinnamaldehyde	3.60	2.72	.008	.04
	B	Hydrocinnamaldehyde				

TABLE VI-B

	3½cc. Benzaldehyde	*Heptaldehyde*	*a-Amylcinnamaldehyde*
½cc. Vanillin	.00	.00	.00
Piperonal	.02	.10	3.60
Salicylicaldehyde	.00	.00	.00
Anisicaldehyde	.18	.87	3.60

[1]Based upon the dissertation submitted by the junior author for the degree of Doctor of Philosophy under the Faculty of Pure Science of Columbia University.

(*Continued on page 533*)

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The Compounders' Corner

Increasing Salicylic Acid Solubility

Salicylic acid is often used in making cosmetics, but its great drawback is its low solubility in water. Thus only about 0.2% is soluble. However, addition of ordinary borax increases solubility greatly. Salicylic acid does not combine with borax to form a salicylate, which is highly important, since the salicylates, particularly sodium salicylate, do not have antiseptic properties. Thus 60 parts salicylate acid, 80 parts borax and 1,000 parts water afford a concentrated solution. Fact that this solution has no odor facilitates its use in cosmetics. Bitter taste of salicylic acid, however, prevents its use in mouth washes.

Soapless Hair Shampoos

Alcoholic extracts of vegetable substances, drugs and the like, are used for making hair shampoos in emulsified form with vegetable albumen. Such preparations are readily mixed with oil and can be used without usual difficulty of removing oil from hair after treatment. Thus olive oil, sesame oil, mineral oil or other oil suitable for treating scalp is mixed with alcoholic extract, for example extract of jaborandi leaves, chamomile and the like, and then emulsified with vegetable or egg albumen. Product is ready for use in shampooing and is claimed to leave it soft and loose and to remove dandruff.

Solvents for Nail Polishes

Principal condition to be met in making good nail polish is to use good solvent for cellulose ester. Some excellent solvents are as follows:—acetone, amylisoacetone, amylacetate, secondary butyl acetate, diacetone, dibutyl phthalate, dibutyl tartrate, diethyl carbonate, monoethylglycol ester, ethyl lactate, ethylhydroxy butyrate, propyl isoacetate, mesityl oxide. Toluene, xylene and gasoline may also be used, but their odor is objectionable.

Colloidal Cholesterin Creams

Skin cream may contain 600 parts white beeswax, 100 parts spermaceti, 500 parts stearin, 600 parts anhydrous lanolin, 400 parts cocoa butter, 1,800 parts oil of sweet almond and 120 parts pure cholesterin. Ingredients are first melted together and cholesterin added. Thereafter a hot solution of 15 parts sodium benzoate, 10 parts borax and 1,700 parts water are stirred into the mixture until it thickens. It is often advisable to obtain cholesterin in emulsified form in the cream or other preparation. A much more stable colloidal solution is obtained when cholesterin is first dissolved in acetone and not in pure water, and then mixed with 2% sodium oleate or sodium ricinoleate, whereupon acetone is removed by evaporation.

Cold Creams for Massage

One formula suggests compounding 65 parts of mineral oil, 35 parts cetyl alcohol and 10 parts water. In another, 90 parts stearic acid, 9 parts potassium carbonate, 800 parts water are used to make soapy mixture by first melting stearic acid and then adding solution of carbonate in water and stirring until all carbon dioxide evolution has ceased. Then mass is cooled. It is mixed with 5 parts white beeswax, 20 parts anhydrous lanolin, 150 parts glycerin and perfumed with 6 parts oil of eucalyptus, 5 parts oil of pinus sylvestris and one part camphor. In another formula 65 parts mineral oil, 7.5 parts stearic acid, 7.5 parts white beeswax, 6 parts solid paraffin wax, 9 parts liquid paraffin, 0.5 part sodium carbonate, 0.5 part borax and 35 parts water are mixed together. Cream may be perfumed. Another cream contains 500 parts lanolin, 500 parts rose water, 500 parts lard, 200 parts glycerin, 15 parts cheiranthus, and 5 parts dianthus (clove pink).

Pine Needle Balsam

Balsam mixture contains 60 parts olive oil, 15 parts pine needle resin, 15 parts yellow beeswax which are melted and mixed with 2 to 5 parts pine needle oil dissolved in 10 parts olive oil. Another similar composition contains 20 parts yellow beeswax, 65 parts pine needle resin, 5 parts oil of turpentine, 5 parts olive oil and 2 parts pine needle oil. Then again 20 parts white beeswax are melted with 35 parts olive oil, 25 parts pine needle resin and cooled and mixed with 15 parts alcohol and 4 parts pine needle oil. Free alkali must not be used in making these preparations, as is indicated in some formulae, as it will irritate skin.

Analgesic Mouth Washes

Anaesthesin is used in analgesic mouth washes. This substance is easily soluble in alcohol and difficultly soluble in water and hence adheres to mucuous membrane with which it contacts. Two grams of anaesthesin are dissolved in 90 parts alcohol and 20 parts water are added. Peppermint oil, anise oil and clove oil may be added to finish preparation. Another product used in these mouth washes is ethyl paraphenol-sulfo-para-aminobenzoate in 2% solution. Novocaine hydrochloride may be used with addition of taste correctives. An interesting mixture is 800 parts tincture of pyrethrum, 40 parts tincture of Spanish pepper, 40 parts oil of clove, 20 parts menthol, 20 parts camphor and 80 parts chloroform.

Following mouth washes may be used for treating pain caused by cariotic teeth. Four parts red saunders are mixed with 2 parts guaiacum wood, 5 parts myrrh, 5 parts cloves and one part cinnamon bark. This mixture is digested with 290 parts 90% alcohol, filtered, and 0.1 part oil of clove and 0.1 part cinnamon oil. In another preparation 16 parts tincture of myrrh are mixed with 8 parts tincture of catechu, 4 parts tincture of guaiac, 4 parts tincture of rhatany, 3 parts tincture of cloves, 2 parts spirits of cochlearia, few drops cinnamon oil and 63 parts 50% alcohol. Simple preparation consists of 2 parts oil of black mustard and 30 parts spirits of cochlearia. Tannic acid is also used in these preparations. Thus 8 parts tannic acid are mixed with 5 parts tincture of iodine, 1 part potassium iodide, 5 parts tincture of myrrh and 200 parts rose water. Five parts tannic acid are also mixed with 5 parts tincture of pyrethrum, 4 parts lavender water, 40 parts 90% alcohol and 20 parts distilled water. Finally 6 parts tannic acid are mixed with 3 parts tincture of iodine, 6 parts tincture of myrrh, 70 parts 90% alcohol and 240 parts rose water.

Vanishing Cream

Stearic acid is principal ingredient of vanishing cream and when worked up correctly with triethanolamine, desired dryness and pearly luster are obtained. Grade of stearic acid used is important. Acid must be very pure, because there must not be any danger of its becoming rancid or discoloring. Degree of acidity of stearic acid has some effect on stability of cream. When stearic acid is very hard and waxy, a larger proportion of water must be added to obtain correct consistency. Any degree of consistency can usually be obtained by varying proportions of stearic acid component. Rapidity of agitation of various constituents of cream has certain action on consistency. While cream is cooling, agitation must be slowed down as soon as stiff, smooth emulsion is formed, so that formation of crust on surface of mixture is prevented. After this point has been reached, more rapid agitation will generally result in formation of carbon dioxide gas with result that thinner cream is obtained.

An example of well-made cream contains 50 parts stearic acid, 9 parts lanolin,

An inferior LANOLIN *makes an inferior Cream or Salve*

THERE are several ways of refining lanolin. There are, as a result, several kinds of refined lanolins.

To make a good cream, salve or other cosmetic or pharmaceutical requiring lanolin, the lanolin should be practically colorless, odorless and of a fine, firm body.

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For instance, under the B-W process of refining:—

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2. The valuable oxy and isocholesterins which are receiving increasing interest as an ingredient of creams are not removed.
3. The fatty acid content does not increase, even after standing a full year. In many lanolins tested this content increased from three quarters of one per cent. to three and a half per cent. in a relatively short period, producing a rancid odor and a dark color which would have materially affected the appearance of any product in which it had been used.

Investigate critically the lanolin you buy. You will find, as so many of the leading cosmetic and pharmaceutical manufacturers have, that it pays to specify B-W Lanolin.

B-W Lanolin U.S.P.

Misleading statements have recently been made inferring that imported Lanolin must be U. S. P. to pass the Custom House or the Appraisers.

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2.5 parts triethanolamine, 18 parts solvent such as ethyleneglycol esters and acetates or mixtures, and 120 parts water. Stearic acid is first carefully melted in container and lanolin added. Triethanolamine and water are heated together and added to above melt with constant agitation. When smooth mixture is obtained, solvent is added, in which perfume is previously dissolved. Agitation is continued during cooling until thick, smooth cream is obtained.

Skin Milks

Milky preparations for use on skin can be made with lanolin, cucumber milk and almond milk. In first case 50 parts lanolin are mixed with 3 parts medicinal soap, 20 parts glycerin, 300 parts rose water, 5 parts tincture of benzoin, 10 parts perfume bouquet and 612 parts water. In second case 30 parts lanolin are melted on water bath and 200 parts warm rose water, containing 10 parts pure potash soap and 20 parts glycerin in solution, are gradually added. Then mixture of 10 parts perfume composition and 30 parts tincture of benzoin are added, and mixture is removed from water bath and mixed with 700 parts warmed, freshly percolated cucumber juice. Mixture is agitated until it cools off. In third case 70 parts shelled almonds are crushed with addition of sufficient rose water to give stiff paste. Then 20 parts tincture of benzoin, 2 parts benzaldehyde and one part rose oil are mixed and added to paste along with 7 parts borax and 50 parts glycerin in sufficient rose water to give total of 1,000 parts. Mixture is allowed to stand several days and then filtered through hair sieve.

Silvering Dragees

Considerable skill and strict attention to details are required to obtain satisfactory silver coating on dragees. Humidity of air in room in which operation is carried out is very important factor. There are various methods, but the one employing gelatin is favored by some pill manufacturers. Pills may also be coated with aluminum.

Silvering operation should be carried out only in clean vessels. Gelatin solution is first prepared by softening 25 parts gelatin with little water and cooking softened mass and then passing liquid gelatin through filtering cloth. Gelatin is then mixed with 60 parts acetic acid in suitable flask. The smaller the original sugar-coated pills, the thinner the gelatin solution must be and the more acetic acid must be added. Silvering process should be carried out in room in which air is dry and as cold as possible, compatible with comfort of workers. Dragees are moistened with gelatin solution in ordinary kettle and operation is carried out by hand. Only smooth dragees should be used, because a fine, metallic luster can be produced only on smooth surface. Dragees must be perfectly dry before silver coating is applied. Silvering is accomplished by addition of silver powder to glass-lined kettle containing pills. This kettle is made so that it can be rotated and silvering takes place while kettle is in motion. Uniform speed of 80 to 100 R.P.M. is important. Pills must run out of kettle quite dry and then they are further dried on glass plate or dish. If silver coating does not possess required luster, then dragees are allowed to remain few days and are then run into glass-lined kettle again and moistened with little acetic acid. Hermetically sealed containers must be used for storing silvered dragees, because they lose luster on contact with air.

Another good method for silvering dragees is to prepare a little gum solution or white syrup with which sugar-coated pills are moistened. They are then placed in box which is filled with few pieces of silver leaf. Box may be made of porcelain, glass, horn or wood. It is closed and rotated so that dragees roll around in it in continuous circle. Rotation continues as long as any metallic particles remain unattached to pills. More silver leaf is added as may be necessary and rotation of box is continued until perfectly silvered pills are obtained. If dragees contain medicaments, which react with silver, such as for example sulfur compounds, a collodion coating is applied before silvering or before sugar coating pill. Thus the pills may be placed in roomy dish and mixture of 2 parts collodion and one part ether is poured over them. Pills are rolled in solution until solid, uniformly lustrous spotless coating is obtained.

Migraine Salve

Ten parts beeswax and 46 parts anhydrous lanolin are melted and 180 parts distilled water added. Mass is well mixed and then mixture of 15 parts menthol, 16 parts methyl salicylate and 2 parts rosemary oil are worked in and uniform salve obtained. In another preparation 5 parts menthol are dissolved in 6.5 parts acetic ester, 4.2 parts absolute alcohol, 1.85 parts triple strength ammonia liquor and solution is worked up into salve with 45 parts anhydrous lanolin, 36.5 parts white petrolatum and perfumed with 0.5 part lavender oil and 1 part essence of eau de cologne.

Chloral Hydrate in Hair Lotions

Chloral hydrate not only possesses pharmaceutical properties but can also be used as an antiseptic and an effective solvent for resinous and gummy substances and oils in making hair lotions. Thus oils, such as castor oil, are readily soluble in chloral hydrate solution. The oils are noticeably more soluble in cold than in hot. Best results are obtained with addition of 2% of chloral hydrate to hair lotions, limits being 1.5 to 2.5%. It can also be added to hair lotions not containing alcohol. Hair lotions, containing alcohol, should not be alkaline, since alkali combines with chloral hydrate to form potassium formate and chloroform. A condensation product of tannin and chloral, dissolved in dilute alcohol in proportion of 1 to 2%, is very useful in combatting seborrhoea.

Mineral Oil in Skin Creams

In order to emulsify mineral oil finely in a skin cream, it is absolutely necessary to use a suitable emulsifier. The following substances have been recommended for this purpose:—sulfuric acid esters of fatty alcohols, alkali salts of alkylated naphthalenesulfonic acids, sulfonated fatty acid amides and compounds of similar constitution. These substances are preferably used together with non-coagulable albumenous substances. Small quantities of these mixed emulsifiers are required for emulsifying the mineral oil.

Binder for Phenyl Salicylate Tablets

These tablets contain phenyl salicylate, hexamethylenetetramine and monobrominated camphor. Binder is mixture of lactose, gum arabic, gum tragacanth, starch, syrup and dilute alcohol. Best results are obtained with rice starch added in small proportions. Dilute alcohol is used to moisten starch. Good results are also obtained with mixture of powdered lactose and rice starch.

Diabetic Tea

Two examples of such teas are as follows. Ten parts acacia flowers, 20 parts mistletoe, 15 parts water fennel seeds and 30 parts lady's mantle. Also 5 parts lovage root, 5 parts valerian root, 5 parts blackberry root, 35 parts herba herba anserinae and enough foliae myrtillae to make 150 parts in all.

Cayenne Pepper in Hair Tonics

Tincture of cayenne pepper is used. Irritation of skin of scalp is produced, causing increased flow of blood through scalp and increased nutrition of hair follicles. Menthol has same action. Best results are obtained with a mixture of menthol and capsicum.

Non-Sulfide Depilatories

Alkali stannites are used as active ingredients in preparing depilatories. Many objectionable features of sulfides in depilatories are overcome. New preparations are non-toxic, non-irritating, effective, rapid in action, stable in air, light in color (even pure white) and odorless or easily perfumed. Sodium stannite is highly effective and is used with suitable wetting agents to aid in penetration of active principle. Pure soap, preferably sodium oleate, is preferred. Inert fillers, such as natural white clays, white diatomaceous earth, alkali earth silicates, for

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Jasmin Absolute
Labdanum Decolorée
Benzyl Acetate F.F.C.
Ylang Ylang Bourbon

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example magnesium silicate, are also used. Fillers act as buffers and reduce any caustic action of depilatory on skin.

Zinc Stearate in Cosmetics

Zinc stearate possesses many advantageous properties in cosmetics and toilet articles. It adheres well to skin and has healing action of zinc. It protects skin from action of injurious influences in atmosphere. It may be used alone and can be worked up easily with any fatty base. It can be easily perfumed. It is useful not only as a principal ingredient of powders but also as salve base. Zinc stearate cream may be prepared with 150 grams glycerin, 100 grams water, 80 grams zinc stearate. Stearate is first triturated with glycerin and water gradually added. Cream is very soft, white and absolutely homogeneous. Sometimes ingredients of cream separate after long standing. This can be corrected by addition of about 5% of medicinal pulverized soap which ensures permanent cohesion of various ingredients in uniform mixture.

Five parts zinc stearate may be easily mixed with 50 parts petrolatum and is useful for many purposes, particularly in healing cuts.

Lanolin salve is made with 325 parts lanolin, 35 parts ceresin wax, 150 parts mineral oil and 150 parts water. Ceresin wax is melted in heated mineral oil and then lanolin is added and mixture allowed to cool. Mass is triturated into soft salve and water and perfume are worked in gradually. Five to 10% of zinc stearate is added to obtain preparation suitable for dry skin.

Hair Gloss Powder

Dry mixture of solid, weak acids with hexamethylenetetramine is stable indefinitely and formaldehyde is gradually split off when mixture is dissolved in warm water. Strong odor is obtained by heating to high temperature. Mixture may contain 50 parts cream of tartar, 40 parts tartaric acid, 9 parts hexamethylenetetramine and 1 part perfume. Used to wash hair to restore natural softness and luster after shampooing with alkaline shampoos. Citric acid may be used for same purpose, in proportion of one to 2 grams per 200 to 250 cc. of water. Other suitable substances include tartaric acid, alum, water acidified with acetic acid and boric acid powder.

After-Shaving Preparations

Triethanolamine is claimed to make after-shaving preparations which have an outstanding softening and soothing action on skin without any danger of irritation. If cost of triethanolamine used alone is too high, it can be mixed with soap, or triethanolamine oleate can be used. Aluminum hydrosilicate may also be used in making these preparations. This compound does not irritate the skin.

Tincture Gelatinization

Tinctures gelatinize and spoil, particularly tincture of catechu, tincture of kino and the like. This phenomenon is caused by action of enzymes. The gelatinized tincture may be heated to proper temperature to kill enzyme and then tincture will return to its original non-gelatinized condition. In this case, quantity of menstruum, which is removed by evaporation during heating, must be replaced. Tincture can be also obtained in such condition that gelatinization is avoided. Thus, in case of tincture of catechu 200 parts of coarsely pulverized catechu are cooked in tarred flask with about 400 parts water. Mass is allowed to cool and brought up to total weight of 500 parts with water. Then 700 parts alcohol are added. Mixture is well shaken, macerated for 10 days and filtered. This tincture will not gelatinize.

Iron Tinctures

Aromatic tincture of iron is made by mixing 420 parts solution of saccharated iron oxide with 750 parts white sugar dissolved in 4,800 parts distilled water, 960 parts 90% alcohol, 20 parts orange peel oil, 4 parts cinnamon oil, 4 parts essence of vanilla and 10 drops ethyl acetate. Iron tincture containing lecithin is made from 30 parts saccharated iron oxide (10% solution) which are dissolved in 630 parts water and then mixed slowly with mixture of 120 parts of 90% alcohol, 220 parts simple syrup, 25 parts 50% lecithin solution and one part of composition of essential oils, which consists of 75 parts orange peel oil, 18 parts lemon oil, 6 parts coriander oil and one part star anise oil. Another formula for an iron tincture without lecithin in:—550 parts 10% saccharated iron oxide solution, 17,875 parts distilled water, 2,000 parts 90% alcohol, 6,000 parts sugar, 75 parts orange peel oil, 19 parts cinnamon oil, 2.0 parts ethyl acetate and 0.5 part vanillin.

New Lecithin Cream

Lecithin is mixed with solution of 6.2 parts calcium carbonate in 600 parts water and 60 parts stearin at 60° C. Partial saponification of stearin results. Ten parts lecithin are mixed with 5 parts castor oil at 60° C. Temperature should not be allowed to rise about this point. Calcium carbonate is first mixed with water and solution filtered without being agitated. Then stearin is added and lecithin solution is mixed with latter mixture without stirring. A creamy voluminous mass is obtained.

Corn Removers

Solution of monochloroacetic acid in ratio of 1:2 is suitable, but stronger solutions should not be used as they irritate skin. Another preparation contains 10 parts salicylic acid and 90 parts glacial acetic acid. This is thickened with mucilage containing 0.5 part gum tragacanth, 3 parts pectin, 3 parts glycerin and 43.5 parts water. About 5 parts of this mixture is used for thickening the preparation. Another composition contains 1 part glacial acetic acid, 8 parts lactic acid, 3 parts dried salicylic acid crystals and 8 parts of aforementioned thickener. Formic acid and carbolic acid, thickened with same thickener, may also be used.

Tablet Making

No binder should be used in compounding mixtures for making tablets except the binder is indispensable. Cohesion of particles in tablet should be attained as far as possible by pressure in tablet making machine. Compounded powder should possess certain degree of moisture. It may be wetted with dilute alcohol and allowed to remain over night in cool, moist room before being made up into tablets. Binders are especially taboo when making biochemical tablets. Only starch and lactose can be used under such conditions. Yeast flour may serve as diluent. Certain swelling agents are sometimes added to powder, these being algae powder, laminaria powder, carragheen moss and agar-agar.

Difficulty is sometimes encountered in making tablets containing amidopyrin. Thus in spite of incorporation of various binders, such as gum tragacanth, other gums, starches, sugar, alcohol and the like, tablet does not stand up and crumbles. It is claimed that this difficulty is avoided by incorporating potato starch and sugar with drug and allowing mixture to dry well before converting it into tablets.

Myrrh Cream

Fifteen parts pulverized myrrh are emulsified with 23 parts water and 30 parts castor oil; then 7 parts anhydrous lanolin are added. Castor oil cannot be used alone, as sometimes thought possible, because only a part of myrrh is soluble therein.

Hiding Odor of Garlic Juice

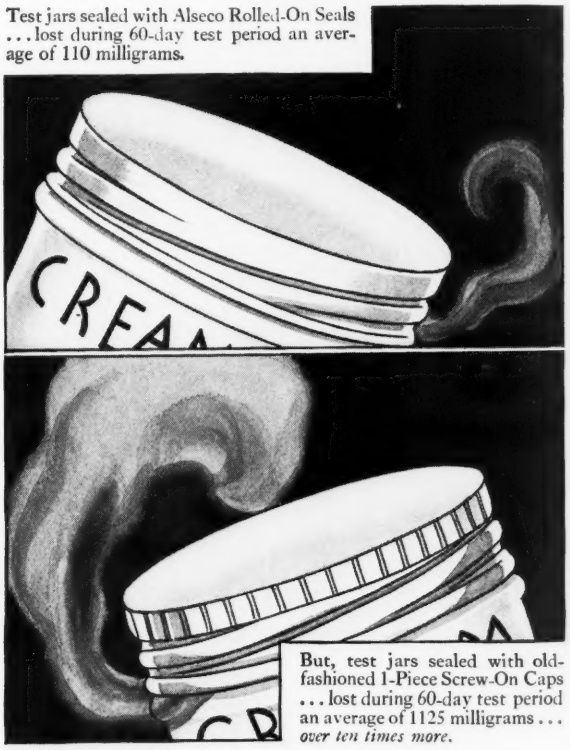
Essential oils or mixture are best used to cover odor and taste of garlic juice. Good results are obtained with mixture of cinnamon oil, peppermint oil, and clove oil. Oil of angelica root is also very useful. Quantity of oil required depends on character of garlic. Quantity that must be used to hide odor and taste must be determined experimentally. Odor can also be removed by repeated filtering over bone charcoal. Juice is mixed with peppermint oil, citronella oil, star anise oil, oil of wintergreen, benzaldehyde, or menthol valerianate. Two to six drops of oil per 100 grams of garlic juice are sufficient to give results. In case of peppermint oil, 10% of weight of pretreated juice is sufficient.

P. T. L. ASKED WOMEN ABOUT YOUR SEALING PROBLEMS

NO. 2 OF A SERIES

Scientific Tests Show . . WHY

Test jars sealed with Alseco Rolled-On Seals . . . lost during 60-day test period an average of 110 milligrams.



But, test jars sealed with old-fashioned 1-Piece Screw-On Caps . . . lost during 60-day test period an average of 1125 milligrams . . . *over ten times more.*

Product Strength and Effectiveness *Pass into Thin Air*

The pictures of the test jars, at the left, visualize the story the scales told of average evaporation losses sustained by 4 well-known and nationally advertised beauty products. Some loss, of course, is inevitable. . . But through imperfect sealing, over *10 times* too much of their product-strength effectiveness vanished into thin air.

No wonder women switch. They know what they want . . . but with these 4 beauty products under old-fashioned 1-piece Screw Caps . . . every day they had 19 milligrams less chance of getting it.

Now we grant that women know nothing about milligrams . . . but we do NOT grant that they don't care about them. They *do*, especially when product-strength and effectiveness pass into thin air with the 19 milligrams that escape every day a product stands on shelves, in show cases or windows.

Don't take that risk with *your* sales . . . there's no need . . . this test proved that when exactly the same quantity of cream was packed in the same jar . . . *but sealed* with an Alseco Rolled-On Seal . . . it lost, during the test period . . . only 1⅓ milligrams per day.

Here's why Drug Store Products, with Caps that have to be jimmied off, Lose Sales

STRONG GRIP

Even with aid of knives, pliers, openers, etc., women having a strong grip can open only 4 out of every 5 containers that are sealed with old-fashioned 1-Piece Screw-On Caps. But, they can open 100% of all Alseco Rolled-On Seals.

AVERAGE GRIP

Using every method they know and can think of, women with the average grip can open only 3 out of every 5 containers that are sealed with 1-Piece Screw-On Caps. But, they can open 100% of all Alseco Rolled-On Seals.

WEAK GRIP

Using every possible aid they know of, women having a weak grip can open only 2 out of every 5 containers that are sealed with old-fashioned Screw-On Caps. But, they can open 4 out of 5 Alseco Rolled-On Seals.

Facts . . . as Startling as these tell why Imperfect Selling Methods Lose Sales

Let us show you the Laboratory Test sheets on this and three other famous beauty products. Let us show you, too, a 60-page report* of consumer reaction to old-fashioned 1-piece Screw Caps that must be jimmied off.

Don't go another day without the Market Research Committee's help on your sealing problems. Just use the coupon . . . we'll advise with you about your present container and sealing methods . . . show you just how Alseco Rolled-On Seals go on easily in your plant . . . come off easily in your customer's home . . . and, at the same time, *provide an hermetic seal that is FREE . . . of "leaking and breathing."*

ALSECO SEALS *and Sealing Machines*

*From the Consumer-Home and Laboratory Test Data of Pittsburgh Testing Laboratory as reported in Food Industries March, April, May, 1933.

ALSECO SEALS TRADE MARK REG. U. S. PAT. OFF.

We offer a complete Sealing Service . . . for all types of products and packing. Automatic and Hand-Operated Machines . . . Alseco Goldy, Rolled-On, Screw Cap and Specialty Seals.

Market Research Committee
Aluminum Seal Company, New Kensington, Pa.
I would like to talk with you about Alseco Seals and Sealing Machines.

Name.....

Street and Number.....

Name of Company.....

Position.....

City.....State.....

the New Anchor Turret Tube

WITH CAPTIVE MOLDED CAP

AN ASSET TO THE PRODUCT INSIDE

HERMETICALLY SEALED TUBES—To insure perfect condition of the packaged contents, no matter what their nature, the Anchor Turret Tube has a completely sealed end. There is no open aperture—but a thin spot at the side of the top that may be easily punctured. You are assured that your product has not evaporated, leaked or dried out when it reaches the consumer. Good will, consumer satisfaction and your own reputation are protected.

PERMANENTLY ATTACHED CAPS—A special construction of the top of the tube securely locks the molded caps in place, yet allows them to rotate freely. Since caps are permanently fastened to the tubes it is unnecessary to inspect them for tightness, to replace those that may have jarred loose, or to retighten them after filling. To the user this means added convenience and better protection to the contents while being used.

SIMPLE, EASY OPERATION—The Turret Tube is more convenient for users than any screw capped type. A slight turn with the fingers and the tube is open, ready for the contents to be ejected. A slight turn in the opposite direction and it is closed again. There is no matching of threads, no retrieving lost caps, no liners to stick to the top of the tube. An automatic stop controls the turning of the cap in either direction. You can do it in the dark.

★ ★ ★

An inspection of the Anchor Turret Tube is necessary to appreciate its advantages. Write for samples and further information.

CUTAWAY VIEW OF TOP OF TUBE AND CAP CONSTRUCTION

Note in the above illustration the generous sized aperture in the cap from which the contents are ejected. This view shows the cap in an open position, lined up with the aperture.

Just below this aperture you can plainly see the projecting shoulder or ledge that bulges outward. This projection extends around the entire circumference of the top of the tube and is formed in it by a separate manufacturing operation after the cap is in place. It securely locks the cap on the tube, yet allows it to rotate freely.

Note also the lug (directly above the arrow) which prevents the turning of the cap beyond a specified point, thus providing the automatic stop that contributes so much to the unusual and welcome convenience of the Anchor Turret Tube.

A TURN AND IT'S OPEN... ★ **A TURN AND IT'S CLOSED**

ANCHOR CAP & CLOSURE CORPORATION
Long Island City, N. Y. • Toronto, Canada
Branches In All Principal Cities

Owens-Illinois invites you to see the interesting exhibit in the Owens-Illinois Glass Block Building at "A Century of Progress."

Dignity and Beauty

for creams or ointments

● In choosing a container for ointment or cold cream, you do well to consider the dignity and beauty that these *Onlzed* glass jars add to your product. The crystal-like clearness and brilliance of *Onlzed* straight-sided Cold Cream Jars in flint glass explains their popularity with the drug and cosmetic trade. Their stately simplicity permits a unique package for cold cream.

For striking package distinctiveness and ethical appearance, *Onlzed* Ointment Jars are offered in colorful emerald green. Standard *Onlzed* strength and economy in shipping are ably combined with their smart design. In combination with our new applied color process these jars offer interesting possibilities for treatment in pastel and other shades. Here is your opportunity to extend today's "New Deal" to your own business. Write to glass packaging headquarters for details. Owens-Illinois Glass Company, Toledo, O.

Onlzed
PHARMACEUTICAL AND PROPRIETARY WARE

OWENS-ILLINOIS

1873 • SIXTIETH ANNIVERSARY • 1933

No marring — no crushing of tablets

KIMPAK Crepe Wadding excess bulk gives better protection to contents of bottle!

Use of KIMPAK for preventing marring and crushing of tablets in wide neck bottles.

HERE is another use for KIMPAK Crepe Wadding. Hundreds of manufacturers of drugs and cosmetics use it to prevent bottles and packages from breakage during shipment. Now U D G A, Inc. of St. Paul, Minn. use KIMPAK instead of cotton to keep their Udga Stomach tablets from marring and crushing. Others find it valuable when contents of bottle are considerably less than available space. KIMPAK, due to its excess bulking qualities will pack three times as many bottles as cotton. Also it retains its bulkiness and does not pack down.

KIMPAK is so soft and absorbent, (absorbs 16 times its weight in moisture) so clean, so resilient that it serves in many ways. Let us send you samples and costs. There's no obligation. Just mail the coupon.

Kimpak
REG. U.S. PAT. OFF. & FOREIGN COUNTRIES
CREPE WADDING

DCI-6

KIMBERLY-CLARK CORP., Neenah, Wis.
Please send us sample and full information on KIMPAK.

Address nearest sales office:
8 S. Michigan Avenue, Chicago; 122 E. 42nd Street, New York City; 510 West Sixth Street, Los Angeles.

Company..... Attention of.....

Address..... Our Product is.....

The third product of the Pepsodent Co.—Junis Facial Cream—features the fact that it contains "sebisol," that it is non-alkaline and that it contains no wax or paraffin. It is an all-purpose cream and thus may be used as a cleansing cream, a night cream, and a powder base. "Junis" is packed in tubes and jars, the former retailing at 50 cents and the latter at one dollar.

A new rejuvenation cream by Charles of the Ritz, "Rejuvenescence," is packaged in a black jar with small silver label. The cap unlike the jar and label is characteristic of the line with the Charles of the Ritz trade-mark stamped on it.

Mosby's new "A to Z" antiseptic features a molded valve-cap and a carbonated fluid. Thus when the button in the cap is pressed a small nozzle throws a fine spray to the affected part. Photo courtesy "Durez."

Smith, Kline & French Laboratories, Philadelphia is now offering its "Oxo-ate B" tablets in a new, larger-sized package. "Oxo-ate B" is calcium-ortho-iodobenzoate and is recommended for the relief of pain, swelling and muscle spasm in arthritis and rheumatoid conditions generally.

Courtesy Durez

Grace and in Plastic

Because of low cost and elimination of mold charges, stock containers of distinguished design are now available in several very brilliantly colored plastics.

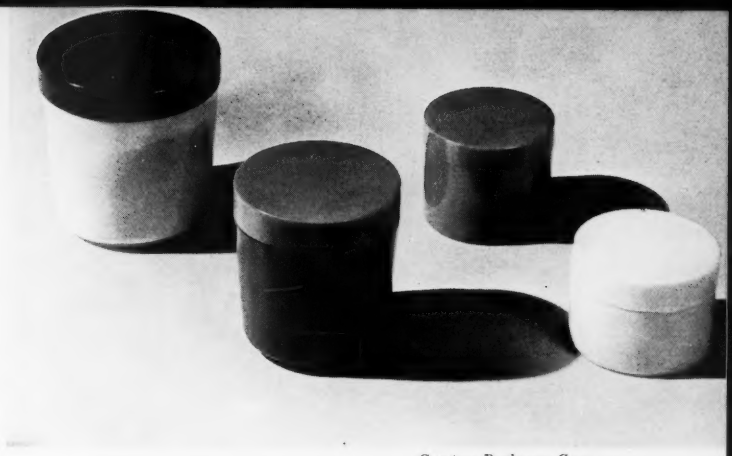
IT HAS been said that the *synthetic age* is fast approaching; in packaging it is already here. In addition to rapid progress made in connection with closures, applicators, package accessories and display devices, plastics are making equally rapid strides in the container field. When one recalls the early obstacles plastics had to overcome the progress already made is simply amazing. Owing to these early difficulties many prejudices and misconceptions exist, and in a trade so intimate and personal that the experiences and difficulties of one are the common property of all, these erstwhile difficulties are remembered and constitute acute "sales resistance."

One of the most prevalent misconceptions is in regard to price. Remembering the price at which plastics were first introduced many manufacturers still believe that they are still too expensive for their own particular purposes. Not having investigated, excepting possibly with regard to closures, such manufacturers do not realize that most plastic containers are sold at prices that compete reasonably with packaging materials of other kinds. A number of developments have contributed to bring about this desirable result. First; the success of plastic closures has given both compound makers and molders sufficient volume to make possible radical cost reductions; second, the decline of commodity prices in general has also been a marked contributory factor, and, last, the increasing skill of molders and the development of faster molding equipment have shortened the molding cycle and increased production to a point where the economies made can be passed on to the purchaser.

Another phase of the price question is concerned with mold charges. Although the trade had been accustomed for years to paying die and tool costs for metal compact cases, it balked somewhat at paying equivalent or even smaller amounts for plastic molds. Perhaps at the beginning, the uniqueness of the material

Courtesy Beetleware Corp.

Charm Packages



Courtesy Beetleware Corp.

and lack of knowledge of public reaction had a tendency to make the manufacturer hesitate about risking a fairly substantial investment for a special container. Since that time the public acceptance of plastics closures has dispelled all doubt about immediate acceptance of containers and in consequence more interest in them is everywhere evident. But notwithstanding there is some hesitancy owing to the fear of excessive mold charges and ignorance of the limitless variety of stock containers now available. These stock containers, incidentally, carry no mold charges whatever.

Although introduced but a short time ago stock containers have made surprising headway. Manufacturers have at last come to the realization that the vast majority of packages on the market are really stock *shapes* even though made from special tools, molds and dies. For instance millions of metal compact and rouge cases are turned out each year from the same dies for different manufacturers. Before they are finished they all look alike insofar as color, mechanical construction and shape are concerned. But when colors are added or the finishes of the metal varied—or when one manufacturer uses a case with an embossed top while another one uses it plain—each manufacturer's case becomes his *individually* and it would take the closest inspection to identify it with others from the same dies. The same thing is true—possibly more so—in connection with face powder boxes. Possibly ninety per cent of all face powder sold goes to the consumer in standard —and therefore stock shapes—namely machine made rounds and squares. But do they look alike? Most certainly they do not because of color and design in label treatment. Similarly, most of the face cream of the trade is carried in round containers, a very large portion of which are stock, and many that come from special molds differ from the stock shapes only in regard to embossing. And sometimes even this plays no important part because it is placed on the bottom.

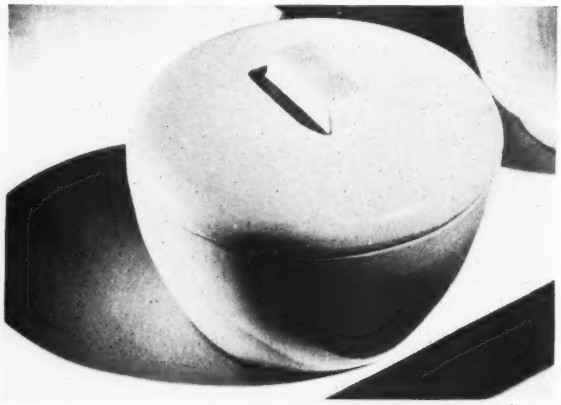
Courtesy Beetleware Corp.

So it is seen that heretofore the question of *shape* has played but a comparatively small part in securing package distinction or differentiation. Reliance has been placed on color, label design, closure treatment. Knowing this, plastic manufacturers are offering a line of stock containers which can be differentiated, not only by means of color, label and closure treatment, but also to a limited extent as yet, by *shape*, as for instance, when a cylindrical container is capped by a domed closure and another is capped with a flat one, while still a third is capped with a closure surmounted by a button or finished with embossing of some kind. Not content with this, plastic makers are also offering washed-in embossing in contrasting colors, metal inlays and knurled finishes. In brief, plastic makers contend that one of the easiest ways to secure package distinction is to use a plastic stock container.

Another and most persistent problem—possibly the most difficult to overcome—is the reluctance of some manufacturers to use plastic containers because they look so much smaller than packages of equivalent size made from other materials. This of course is always a relative question depending upon the type of trade to which the manufacturer caters. Elizabeth Arden experiences no difficulty in getting one or two dollars

for two ounces of cream, but other large manufacturers have difficulty in selling six ounces or a pound for the same price. The plastic makers contend, and their contention is psychologically sound, that *richness* and *value* are never associated with *bulk*, but rather the reverse. They also point out that plastic containers of a size equivalent to those they supplant contain only one or two more ounces, and that the cost of this additional quantity is negligible, especially in a trade in which the emphasis is so completely placed on selling that the manufacturer does not hesitate to spend from five to thirty cents per package in various forms of selling expense. They further contend that the cost of the additional quantity is rarely two cents and in many cases is less than one. In view of this they claim that extra quantities given to equalize the size of new and old packages should be considered a selling expense and not a charge against the package.

This attitude seems reasonable when one considers



Courtesy Durez

the amount of merchandise annually given away by the trade in samples and in free deals of one kind or another.

Furthermore they contend that a plastic package of equivalent contents is *larger* than either a paper or a metal package, and finally, they point out that the wall thickness of the plastic package can be increased to a point where it will compare in size with other packages of equal content. The question is merely one of whether it is better to pay an additional price for a heavier plastic container or an equal or lesser sum for additional contents.

At all events both types of plastic package are now available, light and heavy.

Finally there is the question of odor and chemical reaction in regard to which ancient and stubborn prejudices exist. As a matter of fact many plastics never did have any odor and those which did, have overcome the objection entirely through advances in compounding and molding technique. Unfortunately this prejudice arose in the early days of plastics through the efforts of incompetent and inexperienced molders to reach out for business too avidly and without adequately studying the requirements of the trade. In those days the molders were not under the direct control and supervision of the compound makers and, in some cases, odors blamed on recognized compounds were really caused by adulteration or the efforts of some molders to make their own molding compounds. This situation was extremely unfortunate since it injured both compound makers and moulders alike. Adulteration, moreover, particularly with an excess of wood flour, caused brittleness which resulted in an undue amount of breakage. These early obstacles have been overcome through closer co-operation between compound makers and molders. Compound makers have published a list of the chemicals with which reactions might be expected; they have demonstrated that odors quite as often come from failure to air container after removal from molds as from the compound itself. They have demonstrated quite conclusively that plastics exposed to air lose all odor. They point out that properly aired plastics have considerably less odor than paper board, that some paper boards have a definitely objectionable odor because of the sizing they contain, and that even some liner materials have considerably more odor than plastics. To prove this contention tests have been made in which delicately perfumed creams and face powders were kept in tightly closed plastic containers at a constant temperature of 100 F for a month without any effect on the odor or the plastic.

New Penetrating Chemical

ORTHO-PHENYL-PHENOL is now being introduced for use in medicated ointments and skin creams, the claim being made that this product possesses an unusual power of skin penetration.

To demonstrate that orthophenylphenol has a definite action in bringing about penetration of ingredients into the tissues, comparative tests were conducted on media simulating as closely as possible the tissues of the human body. For this purpose a protein mixture of the brain of the calf was combined with agar and the heated mixture poured into dishes and allowed to set in the form of a jelly.

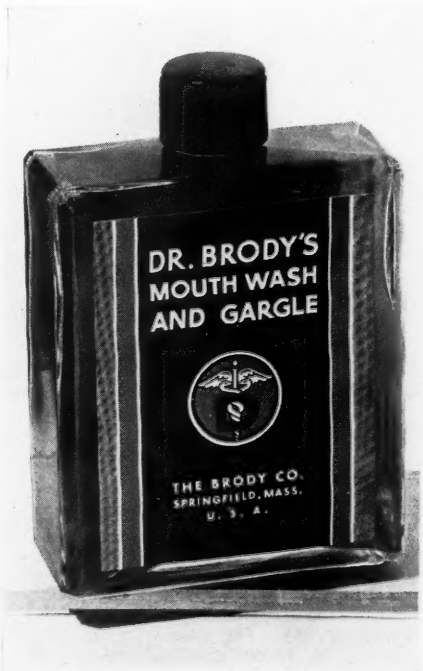
Depressions about the size of a thimble were made in the center of the mass down from the surface, and in these depressions the materials under test were introduced.

In one test, a combination of substances, such as menthol, eucalyptol, camphor, oil of turpentine, and oil of nutmeg, were employed. When these ingredients are mixed together, the resulting mixture is liquid. This same mixture was also combined with petrolatum in the form of a salve, in the proportion of one to four, and the salve was introduced into another test plate.

At the same time the above tests were conducted, the same mixture of menthol, eucalyptol, camphor, turpentine, etc., was treated with five per cent. orthophenylphenol and the liquid mixture resulting was introduced into another test plate. A salve was prepared into petrolatum in the proportion of one to five and the salve introduced into another test plate.

All of these tests were then allowed to stand at a temperature of about 37½° C., corresponding to that of the human body, and after 48 hours, an examination was made of the jelly-like mass beyond the depressions in which the substances were held. In no case had sufficient material been added so that it could run over the surface or in any way splash out into the adjacent jelly. It could be definitely established that where orthophenylphenol was employed the menthol, camphor, eucalyptol, turpentine mixture had penetrated to a considerable distance in the mass of artificial tissue, whereas when none was present there was practically no penetration at all.

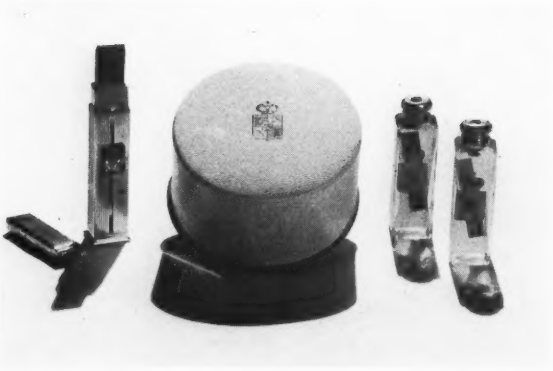
The Hush Company of Philadelphia has just completed a revolutionary repackaging job on all sizes of its cream deodorant. The change was guided by thoughts of consumer convenience with a resulting swing to the more shallow package. The picture clearly indicates the changes which were made in the 25, 50 and 10-cent sizes, although it does not show that the characteristic pink of the "Hush" line was retained. Concurrent with the change in packages, a new large one dollar size was added to the line.



The Brody Co. of Springfield, Mass., has introduced its new "Dr. Brody's Mouthwash and Gargle" packaged in a large square bottle with black, gray and red label.

C. E. Jamieson & Co., Detroit, is now offering "Levenol" a leavened oil emulsion recommended for promoting intestinal hygiene. It is packaged in a wide-mouth bottle with screw cap as shown.

A new idea has been introduced into the cosmetic field with Elizabeth Arden's "Ardena Velva Beauty Film," a preparation that makes the legs as smooth as velvet as well as covering blemishes of any sort. It comes in three shades, light, dark and evening, and is packed in rose pink tubes with white decorations.



Prince Matchabelli has created another series of perfumes which he calls "Rhapsodies." These are for evening wear and are designed to complement the recent floral series for day time use. They are packaged in similar containers, the one-quarter and one ounce sizes. Two new powder shades have also been developed, Roman and Florentine, the former a dark shade with a rose tint; the latter a shade between rachel and Arabique. The new lipstick "Cardinal" is a lively shade between raspberry and scarlet containing none of the objectionable purple tints.

"Iceglo," a medicated greaseless cream for painless shaves, has been introduced into Canada by the Noxema Chemical Co. of Canada, Ltd. It is packaged in a large blue jar with blue-and-white lithographed screw cap.

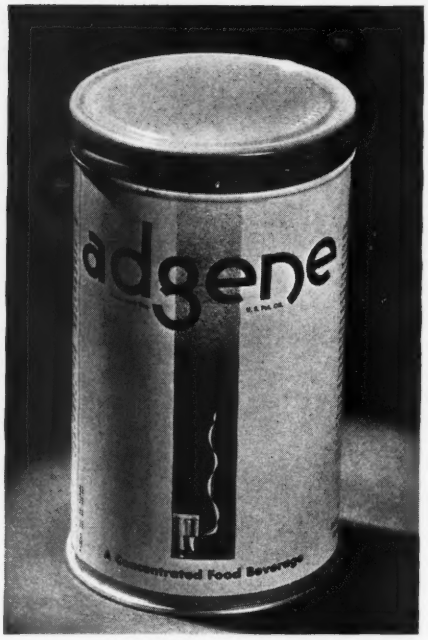
Barbara Gould in presenting her new beauty kit has packaged the creams in tubes. All the essentials for an extended trip are to be found in this combination—cleansing, tissue, circulation and finishing creams, hand lotion and skin freshener—which is developed in the characteristic tan with red decorations.

One of the most distinguished of the recent packages is the one in which "Perstop," the new anti-perspirant, is introduced. "Perstop" will be recognized as the companion product to "Perstick." A feature of the package is the new patented automatic applicator which makes for maximum ease in application. The package is completed by a smart, black-and-gold label.

Garglette Products Co., Indianapolis, has introduced its new mouth wash and gargle, "Garglette." The product is non-toxic and therefore safe to swallow.

Merit Laboratories, Inc., Philadelphia, has repackaged its entire household line in modern cartons and bottles. Each carton has a window through which the panel of the label on the bottle shows when the bottle is in the carton.

The "Gypsy tan" make-up of Helena Rubinstein includes Gypsy tan Sunproof powder and the new Gypsy Tan Foundation cream, a red-brown cream that affords a perfect base for the sun tan powder. It is packaged in a white jar with black and silver label.



Indications that ethical drug products are swinging to plastic materials for packaging is seen in this new molded jar used by L. D. Caulk Co. of Milford, Del., for its temporary stopping. Photo courtesy "Durez."

"Adgene" a concentrated food beverage is being offered in an attractively lithographed orange, white and black tin by Adgene, Inc., of Paterson, N. J.

Three new shades of lipsticks, one to harmonize with the titian or auburn hair, Poinsetta for the brunette and Red Cherry for the blond, all products of Kathleen Mary Quinlan, are fitted into small, convenient purse size black and white banded enamel cases. The Quinlan beach oil this year has been repackaged in the typical bottles but with shaker tops. This may be obtained in two sizes, the smaller one having a silver tone cap; the larger a black plastic one.

"Lavender" in six size raffia covered bottles is the latest addition to the line of Mitcham English lavender products handled by the Groville Sales Corp. in this country. The bottles are of green and experiments have shown that the green preserves the odor of the lavender longer.

(*Continued from page 514*)

rate in all cases except in that of hydrocinnamaldehyde.

VIII. Daylight Autoxidation Rates of Binary Mixtures of Aldehydes

This series of experiments corresponds with those just discussed and presented in Tables VI-A and VI-B, except that they were carried out in bright daylight instead of in the dark, with the same objects in view. The results appear in Tables VII-A and VII-B, and some of the curves are plotted in Fig. 3. A comparison of the two sets of tables brings out some interesting information; as does likewise a comparison of the curves in Fig. 3 with those of Fig. 2, showing graphically the effect of the addition of one aldehyde upon the autoxidation rate of another one.

In Table VII-A, the figures in the first horizontal row show the progressive effect of varying the ratio of the two aldehydes. Similar experiments were carried out in the dark and gave like results, but are not all recorded in Table VI-A.

Selecting from Tables VII-A and VII-B for comment the three aldehydes discussed from Tables VI-A and VI-B, the following observations are pertinent:

(1) *Benzaldehyde.*—The effect upon its autoxidation rate produced by the addition of another aldehyde was practically the same as in the dark. When benzaldehyde was added to another aldehyde, the autoxidation rate of the latter was increased or decreased but little, that of *alpha*-amyl-cinnamaldehyde remaining unaffected.

(2) *n-Heptaldehyde.*—Its autoxidation rate was increased slightly by the addition of *p*-tolualdehyde or benzaldehyde, more so by cinnamaldehyde or its *alpha*-amyl derivative, but decreased by the addition of any of the other aldehydes. The addition of heptaldehyde to benzaldehyde, *p*-tolualdehyde, *alpha*-amylcinnamaldehyde or hydroxycitronellal, raised their autoxidation rates, decreased those of citral and citronellal, and was without influence upon the others.

(3) *Alpha-Amylcinnamaldehyde's* autoxidation velocity was heightened by the addition of heptaldehyde, hydroxycitronellal or cinnamaldehyde, lowered by citronellal or phenylacetaldehyde, reduced to zero by salicylaldehyde or vanillin, and unchanged by the others. The addition of *alpha*-amylcinnamaldehyde to hydrocinnamaldehyde, decreased the autoxidation rate of the latter; added to other aldehydes, it increased their rates.

A comparison of these two series of experiments, one in the dark and the other in bright daylight, shows on the whole a close similarity between the two. In other words, the influence of one aldehyde upon the autoxidation rate of another is much the same in daylight as in the dark, and lends support to Backstrom's view that the reaction mechanism is the same in the two cases.

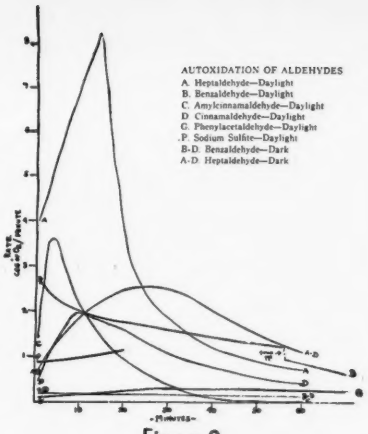
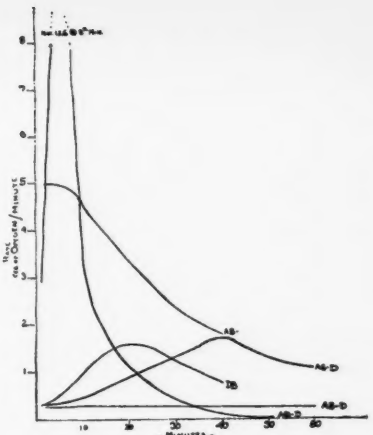


Figure 2

A superficial consideration of the two series might lead to the general conclusion that the more sensitive an aldehyde is to oxidation, the greater is its effect in increasing, not inhibiting, the oxidation of another aldehyde; and yet, if we compare the effects of aldehydes of analogous structure, like phenylacetaldehyde and hydrocinnamaldehyde, or citronellal and citral, there will be found an apparent relationship between ease of oxidation and inhibiting action.



AB-D, 2 cc. Heptaldehyde + 2 cc. Benzaldehyde—Dark.
AB, 2 cc. Heptaldehyde + 2 cc. Benzaldehyde—Light.
AG-D, 3.5 cc. Heptaldehyde + 0.5 cc. Phenylacetaldehyde—Dark
DB, 3.5 cc. Cinnamaldehyde + 0.5 cc. Benzaldehyde—Light.
AD-D, 3.5 cc. Heptaldehyde + 0.5 cc. Cinnamaldehyde—Dark.

Figure 3

The potent catalytic effect of *alpha*-amylcinnamaldehyde, not only in daylight but more strikingly in the dark, upon the autoxidation rates of some of the aldehydes, notably the purer benzaldehyde and heptaldehyde, presents an interesting problem, and may possibly have some connection with the formation of the *cis*-acid by the autoxidation of *alpha*-amylcin-

TABLE VII-A

Daylight Autoxidation Rates of Binary Aldehyde Mixtures

No.			*ccs. of* A 4.0 B 0.0	3.5 0.5	3.0 1.0	2.5 1.5	2.0 2.0	1.5 2.5	1.0 3.0	0.5 3.5	0.0 4.0
1	A	Benzaldehyde	2.70	3.50	3.90	4.30	5.00	6.80	9.20	10.00	9.00
	B	Heptaldehyde									
2	A	*a*-Amylcinnamaldehyde	3.80	4.90	8.30		15.50	16.80	18.00	20.00	8.20
	B	Heptaldehyde									
3	A	Cinnamaldehyde	2.10	2.00			3.70			14.40	8.20
	B	Heptaldehyde									
4	A	Benzaldehyde	2.70	14.80	8.10		6.90	6.10	5.10	3.80	2.80
	B	*a*-Amylcinnamaldehyde									
5	A	Benzaldehyde	2.50	.40			1.00			1.60	2.10
	B	Cinnamaldehyde									
6	A	*a*-Amylcinnamaldehyde	4.00	6.90			6.40			3.00	2.10
	B	Cinnamaldehyde									
7	A	*p*-Tolualdehyde	2.40		3.40	4.70	5.10	6.70		8.70	8.20
	B	Heptaldehyde									
8	A	Benzaldehyde	2.80	2.50	2.20	1.90	1.50		1.80	2.00	2.50
	B	*p*-Tolualdehyde									
9	A	Benzaldehyde	2.60	2.10						2.90	.95
	B	Hydroxycitronellal									
10	A	Heptaldehyde	8.20	5.30						1.40	.90
	B	Hydroxycitronellal									
11	A	Cinnamaldehyde	2.00	2.60						2.00	.95
	B	Hydroxycitronellal									
12	A	*a*-Amylcinnamaldehyde	3.80	4.90						1.90	1.00
	B	Hydroxycitronellal									
13	A	Benzaldehyde	2.60	.06						.11	.10
	B	Citral									
14	A	Heptaldehyde	8.20	.10						.08	.10
	B	Citral									
15	A	*a*-Amylcinnamaldehyde	3.80	3.80							.10
	B	Citral									
16	A	Benzaldehyde	2.60	.10						.03	.014
	B	Citronellal									
17	A	Heptaldehyde	8.20	.14						.01	.015
	B	Citronellal									
18	A	*a*-Amylcinnamaldehyde	3.70	1.90							.013
	B	Citronellal									
19	A	Benzaldehyde	2.60	1.12						.42	.30
	B	Phenylacetaldehyde									
20	A	Benzaldehyde	2.60	1.92						.34	.15
	B	Hydrocinnamaldehyde									
21	A	Heptaldehyde	8.20	3.00						.40	.30
	B	Phenylacetaldehyde									
22	A	Heptaldehyde	8.20	5.30						.15	.15
	B	Hydrocinnamaldehyde									
23	A	*a*-Amylcinnamaldehyde	3.70	2.90						.34	.30
	B	Phenylacetaldehyde									
24	A	*a*-Amylcinnamaldehyde	3.80	3.80						.08	.14
	B	Hydrocinnamaldehyde									

TABLE VII-B

	3½cc. of Benzaldehyde	*Heptaldehyde*	*a-Amylcinnamaldehyde*	*3½cc. Salicylicaldehyde*	
½cc. Vanillin	.018	.06	.00	½cc. Benzaldehyde	.02
Piperonal	.12	.21	3.60	Heptaldehyde	.08
Salicylicaldehyde	.17	.11	.00		
Anisicaldehyde	1.80	1.65	3.60		

namaldehyde in the dark, observed by Bogert and Davidson[18], and referred to in the introductory portion of this paper.

IX. Effects of Various Organic Chemicals upon the Autoxidation of Aldehydes

This series of experiments was undertaken in the belief that it would contribute information which would prove not only intrinsically useful, but also would be useful in determining further work. Knowledge concerning the relative effects of these various chemical groups should be of assistance in prophesying the probable effects of other chemicals containing similar groups, and as a guide in subsequent studies of inhibitors. Such knowledge is of considerable practical importance to the perfumer.

The autoxidation was studied both in daylight and in the dark, by adding 0.5 cc. of the chemical to 3.5 cc. of the aldehyde and recording the maximum oxygen absorption per minute for this mixture. The results are given in Table VIII.

TABLE VIII

Effect of Organic Chemicals upon Dark and Daylight Autoxidation Rates of Aldehydes

	3½ccs. Heptaldehyde			Benzaldehyde			a-Amylcinnamaldehyde		
	Relative	Max. Rates		Relative	Max. Rates		Relative	Max. Rates	
Chemicals 0.5cc.	*Effect*	*Light*	*Dark*	*Effect*	*Light*	*Dark*	*Effect*	*Light*	*Dark*
Anilines and Amines	1	.00	.00	1	.00	.00	1	.00	.00
Phenol	2	.02	.00	2	.007	.00	2	.10	.10
Benzyl Alcohol	6	1.00	.20	3	.024	.00	4	1.80	2.00
Phenyl Ethyl Alcohol	9	1.80	.50	10	.70	.015	3	2.45	2.55
nor-Butyl Alcohol	11	2.04	.56	7	.65	.025	12	4.40	4.30
iso-Butyl Alcohol	12	2.15	.50	6	.60	.020	14	4.80	4.70
ter-Butyl Alcohol	16	3.82	1.60	15	1.00	.080	20	5.70	5.50
sec-Butyl Alcohol	4	.94	.18	4	.25	.000	11	4.20	4.00
Ethylene Glycol	20	9.90	2.70	13	1.00	.12	9	3.80	3.90
Methyl Ethyl Ketone	13	2.30	.65	17	1.20	.12	18	5.20	5.00
Methyl Phenyl Ketone	18	5.50	3.60	18	1.30	.13	16	4.90	4.90
Propionic Acid	8	1.75	1.21	19	1.70	.12	17	4.90	4.85
Lactic Acid	5	.96	.15	8	.70	.02	7	3.00	3.10
Benzoic Acid	7	1.50	.40	14	1.00	.11	5	2.80	2.70
Salicylic Acid	3	.40	.00	5	.50	.01	6	2.80	2.80
Amyl Acetate	17	4.00	2.50	16	1.00	.100	19	5.40	5.70
Ethyl Valerate	15	2.40	1.00	11	.75	.090	15	4.90	4.70
Benzyl Acetate	10	1.83	.90	9	.70	.085	10	4.10	4.00
Ethyl Benzoate	14	2.35	1.10	12	1.00	.090	13	4.60	4.50
Pure Aldehyde	19	8.20	2.70	20	2.20	.150	8	3.60	3.50

In this table the first column under each aldehyde shows the numerical rating of the chemical used in inhibiting power, as based upon the maximum daylight rates given in the second column. The dark rates (third column) were not used for this purpose, because the relative differences were so much smaller that the accuracy of the comparison would have been less, and a careful examination of the table will show that, had these dark rates been used instead of the daylight ones, the figures in the first column would have differed in only one or two instances. Where there were several maximum rates of the same absorption value, a 10-minute average was taken to decide their relative positions. In the case of benzaldehyde's autoxidation in the dark, most of the rates recorded represent averages for the first ten or twenty minutes.

Examining column one of the table, it will be seen that the anilines and amines were the most potent inhibitors. Those used in the experiments were aniline, monomethyl, monoethyl, dimethyl, diethyl, and monoethanol anilines, diphenylamine, *p*-aminophenol, ethylamine, mono-, di- and tri-ethanolamines, amylamine and triamylamine, all of which inhibited aldehyde autoxidation completely in the quantities employed.

Next in inhibiting power were the alcohols and phenols. Phenol itself had the greatest effect, but as the OH group was moved further and further out on a side chain, this effect steadily decreased. This was observed also in the ethyl alcohol series, where ethyl, *n*-propyl and *n*-butyl alcohols still showed benzaldehyde daylight autoxidation rates respectively of 0.22, 0.18 and 0.65, *i. e.* a decreasing effect upon the autoxidation rate of the pure aldehyde with increasing lengthof the alcohol chain. The results obtained with the four isomeric butyl alcohols confirm the work of Bigelow[7] and Backstrom[8] in this group (see also Table IX). The variation in the influence of the alcohol depending upon the aldehyde used, is well illustrated by comparing the relative effect of phenylethyl alcohol upon the autoxidation rates of benzaldehyde and of *alpha*-amylcinnamaldehyde. The reason why ethyleneglycol, with its two OH groups, is a weaker inhibitor than ethyl alcohol, is probably due to the slight solubility of the aldehydes therein. A further illustration of the anticatalytic effect of the hydroxyl group is obvious in the case of the acids used, when we compare the slight inhibiting action of propionic and benzoic with the much more powerful effect of lactic and salicylic.

Daylight autoxidation rates of heptaldehyde (3.5 cc.) with additions (0.5 cc.) of ethyl or of phenyl ethers were also taken and were respectively 1.90 and 0.65 cc. per minute (not in the table).

Benzene (not in the table), ketones and esters, were practically devoid of any pronounced anticatalytic action.

How greatly *alpha*-amyl cinnamaldehyde differs in its behavior from such aldehydes as *n*-heptaldehyde and benzaldehyde, is also clear from the table, for whereas in the case of the latter two all of the various chemicals used (with one exception) acted as inhibitors, in the case of the *alpha*-amylcinnamaldehyde twelve out of the nineteen chemicals acted as catalysts

The fact that the relative positions are approximately the same in the dark autoxidation as in the daylight, again corroborates the assumption that the reaction mechanism is similar in the two cases. The two experiments recorded in Table IX furnish additional proof of this. The figures given in this table were obtained by a method like that described in Section V (p. 336), namely by alternating a period of darkness with one of daylight. The secondary amyl alcohol noted was a diethylcarbinol which had been re-distilled and the cut used boiled at 114-116.5°. The other chemicals mentioned were the best C. P. grades on the market and were used without further purification.

Since so much work upon the autoxidation of sodium sulfite appears in the literature, it may be of interest to report here the results of some of our own experiments with this compound. As recorded in Tables II and III, the maximum autoxidation rate of sodium sulfite solution (4 cc.), in the dark or in daylight, was 1.20 cc. of oxygen absorbed per

TABLE IX

Photochemical Action upon Autoxidation Rates of Aldehydes with Added Chemicals

Experiment No. 1. Temperature 20° C.

		3.5 ccs. Heptaldehyde and 0.5 cc. of:			
Minutes	*Reaction*	*Heptaldehyde*	*n-Butyl Alcohol*	*ter-Butyl Alcohol*	*sec-Amyl Alcohol*
1— 6	Dark	.32	.18	.20	.15
7— 8	Light	2.17	.37	1.23	.32
9—13	Dark	.53	.13	.40	.18
14—15	Light	2.37	.50	1.62	.40
16—21	Dark	.73	.14	.65	.25
22—23	Light	2.45	.47	1.65	.50
24—28	Dark	.90	.15	.67	.29
29—34	Light	2.60	.50	1.50	.50
35—41	Dark	1.06	.19	.88	.40

Experiment No. 2. Temperature 23° C.

		3.5 ccs. Benzaldehyde and 0.5 cc. of:			
		Benzaldehyde	*Lactic*	*Propionic*	*Benzoic*
1— 5	Dark	.17	.00	.10	.06
6— 7	Light	2.00	.30	1.40	1.00
8—12	Dark	.28	.00	.12	.15
13—14	Light	1.70	.40	1.30	1.30

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minute. When a mixture of 3.5 cc. of sodium sulfite solution to 0.5 cc. of ethyl alcohol was used, this rate fell to 0.015 cc. per minute. A small amount of benzyl alcohol (0.1 cc.) added to the sodium sulfite solution (3.5 cc.), completely inhibited the autoxidation. With the four butyl alcohols (0.025 cc. of alcohol to 4 cc. of sodium sulfite solution), the rates were as follows: for tertiary 1.10, for normal 0.34, for iso 0.33, and for secondary 0.23. All of these rates were the same in daylight as in the dark. Addition of the cupric ion exerted a powerful catalytic effect, but the relative inhibiting action of these alcohols remained the same.

X. Effects of Perfume Raw Materials upon the Autoxidation of Aldehydes

It was hoped that this study would prove of value to the practical perfumer. As in the foregoing studies, the absorption rates were determined on 4 cc. of material (3.5 cc. of the aldehyde +0.5 cc. of the perfume material). These perfume materials comprised well-known synthetics, isolates, essential oils, etc., of standard commercial grade and were used without further purification. The observations were made in the daylight, because the dark rates were too slow to be conveniently compared; and even in the daylight, the autoxidation proceeded so slowly that it was difficult, in most cases, to determine the maximum rate, so recourse was had to average rates when the absorption velocity was less than 0.10 cc. per minute. Table X exhibits the results.

TABLE X

Effect of Perfume Materials upon the Daylight Autoxidation Rates of Aldehydes

Material 0.5 cc.	*3.5 ccs.: Heptaldehyde*	*Benzaldehyde*	*a-Amylcinnamaldehyde*
Cassie (Absolute)	.00	.00	.00
Orange (Terpenless)	.014	.02	.01
Sandalwood	.010	.015	.02
Otto of Rose	.00	.00	.00
Lavender	.03	.01	.10
Geranium	.03	.005	.15
Rhodinol	.00	.00	.00
Citronellol	.051	.03	.20
Coumarin	7.60	2.00	5.00
Geraniol	.002	.00	.00
Iso-Eugenol	.005	.00	.00
Linalyl Acetate	.03	.10	4.00
Methyl Cinnamate	2.80	2.10	4.90
Linalool	.02	.01	.04
Terpineol	.038	.05	.01
Thymol	.00	.00	.00
Violet (100%) art.	.80	.30	1.20
Ylang (Manila)	.00	.00	.00
Bois de Rose	.06	.045	.05
Cassia	.01	.002	.00
Lemongrass	.05	.01	.02
Labdanum	.002	.001	.005
Mousse de Chene	.02	.009	.05
Musk Ambrette	.07	.035	.02
Musk Ketone	1.00	.19	3.50
Musk Natural	.06	.035	.10
Petigrain	.10	.075	.50
Vetiver	.02	.004	.01
Cananga	.05	.035	.06
Patchouli	.03	.006	.008
Ylangol	.01	.004	.002
Orris Concrete	.12	.070	.40
Hyacinth	.03	.004	.01
Bergamot	.008	.004	.006

Of course, these results probably cannot be checked exactly with similar perfume materials from other sources, yet it seems entirely justifiable to draw the following conclusions from an examination of the table: (1) that, with but few exceptions (notably the synthetics), these common perfume materials have marked inhibiting action; (2) that the essential oils themselves are more effective antioxidants than their chief components, e.g. otto of rose compared with geraniol or citronellol; and (3), although doubtless impurities have influenced the results somewhat, the synthetics in general have pretty much the same relative effects as might have been prophesied from an examination of Table VIII, the alcohols inhibiting the oxidation much more strongly than either the ketones or esters.

XI. Inhibition of the Autoxidation of Aldehydes

The importance of the general problem of inhibition warrants a more thorough investigation than could be made in our general study of aldehyde autoxidation. The inhibition of the autoxidation of aldehydes by the addition of small amounts of other substances means a special research requiring time, patience and accurate work. The results which follow are recognized by us as merely preliminary and are reported in the belief that they will be of service to future workers in this field in determining which types of compounds to study and in suggesting one method of procedure.

The results recorded in Table VIII indicated that the most promising types would be the amines, hydroxyl derivatives, hydroxy acids, and possible combinations of these, and Table XI shows our results.

The concentration of the inhibitor was always 0.001 g. in 4 cc. of the aldehyde. Where the absorption rate was below 0.10 cc. per minute, the figures given represent the average rate; all others are the maximum velocities. All measurements were made in daylight, because of the immeasurable slowness of the dark rates.

The table shows that, for the concentration used, only aniline ethanol, and diphenylamine are effective inhibitors for all three aldehydes studied; whereas, if only benzaldehyde and heptaldehyde are considered, aniline and sulfur are also effective. Diphenylamine proved to be decidedly the most potent antioxygen for even in the proportion of 0.0001 g. per 4 cc. of benzaldehyde, the oxygen absorption rate of the latter was reduced to 0.005 cc. per minute. It possessed this disadvantage, however, that even in this low concentration and slight oxygen absorption, the color of the solution changed gradually to a purplish pink, due undoubtedly to the induced oxidation of the diphenylamine. Aniline behaved similarly, but no color change occurred when aniline ethanol was employed.

TABLE XI

The Action of Inhibitors upon the Autoxidation Daylight Rates of Aldehydes

Inhibitors 0.001 grams	*4.0 ccs.: Benzaldehyde*	*a-Amylcinnamaldehyde*	*Heptaldehyde*
Aniline	.05	6.40	.13
Ethyl Aniline	1.92	5.90	1.00
Ethanolaniline	.05	.10	.08
Diethylaniline	1.45	7.00	5.18
Ethanolamine	2.00	5.00	7.00
Diethanolamine	2.03	5.20	7.50
Triethanolamine	.86	4.80	5.00
Sulfur	.05	4.00	.015
Cresol	2.70	4.10	8.00
Resorcinol	.50	2.80	.40
Gallic Acid	.40	2.00	.30
Tartaric Acid	2.00	4.00	8.10
Citric Acid	2.23	3.90	8.20
Gluconic Acid	2.32	3.80	8.10
Quinhydrone	.42	1.80	.30
Hydroquinone	.42	1.70	.35
Diphenylamine	.00	.00	.00

XII. Determination of the Organic Acids Formed in the Autoxidation of Binary Aldehyde Mixtures

The method used for this analysis was a modification of that proposed by Werkman[32] for the determination of fatty acids in mixtures by partition between isopropyl ether and water. Briefly, it consisted in titrating, in an atmosphere of nitrogen, ten drops of the oxidized aldehyde mixture with N/100 sodium hydroxide. The calculated number of drops were then added to 50 cc. of water to form a solution approximately N/100 acid. This was then shaken very thoroughly in a separatory funnel with 10 cc. of isopropyl ether, the two layers were separated and 40 cc. of the aqueous layer was titrated with N/100 sodium hydroxide. The results are presented in Table XII, the figures being the cc. of N/100 sodium hydroxide required for neutralization to phenolphthalein.

The method as used was not expected to be very accurate, but was simple and

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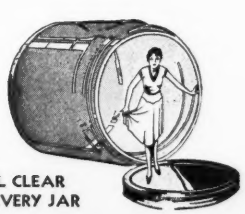

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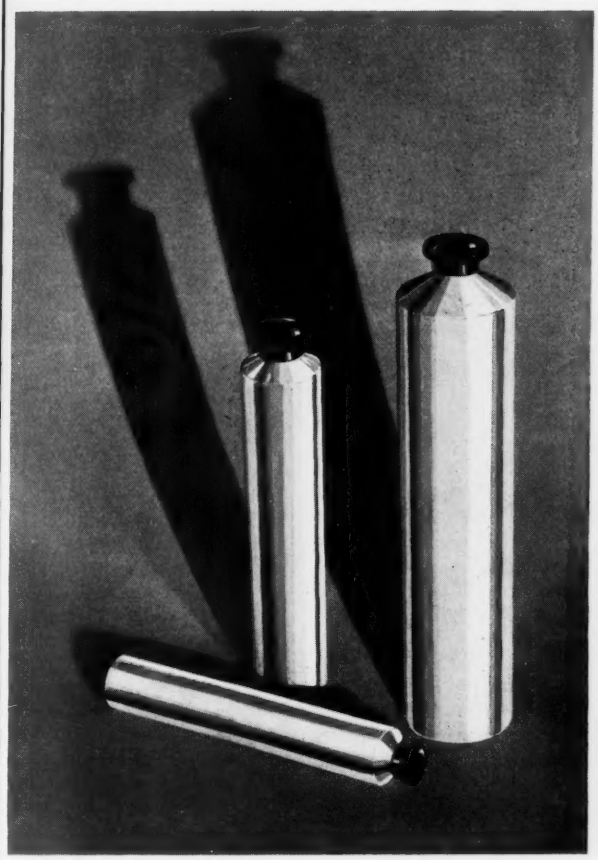

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TABLE XII

Determination of Organic Acids formed in the Daylight Autoxidation of Binary Aldehyde Mixtures

ccs. of A	ccs. of B	Experiments No. 1 N/100 Sodium ccs.	No. 2 Hydroxide ccs.	No. 3 ccs.	No. 4 ccs.	No. 5 ccs.	No. 6 ccs.
4.0	0.0	6.32	7.10	7.50	3.35	3.40	3.00
3.5	0.5	5.37	6.40	6.90			3.10
3.0	1.0	4.08	5.20	6.18	3.04	3.80	5.40
2.5	1.5		4.52	5.50	2.88	4.48	
2.0	2.0		3.78	4.79	2.70	5.07	
1.5	2.5		3.08	4.10	2.52	4.97	8.30
1.0	3.0	2.13	2.78	3.40	2.35	5.16	
0.5	3.5	1.88	2.65	2.70		5.35	6.80
0.0	4.0	1.55	1.80	2.00	2.00	6.00	2.00

A No. 1 Benzaldehyde
B Heptaldehyde
A No. 2 Benzaldehyde
B Heptaldehyde
A No. 3 Prepared Benzoic
B Heptoic Acid mixtures
A No. 4 *p*-Tolualdehyde
B Heptaldehyde
A No. 5 *p*-Tolualdehyde
B Benzaldehyde
A No. 6-*a*-Amylcinnamaldehyde
B Heptaldehyde

rapid, and with appropriate refinements should be serviceable in studying reaction mixtures of this type. The low results in Nos. 1 and 2, as compared with No. 3, the theoretical values determined with the pure acids, is probably to be ascribed to (1) the fact that the normality of the N/100 acid solution was only approximate, and (2) to the solvent action of the added aldehydes.

With the exception of No. 6, the experiments showed that the acids were formed in essentially the same proportions as the aldehydes were present in the initial mixture. The abnormal results in No. 6 were probably due to the formation of increasing amounts of acids of lower molecular weight, and hence greater solubility in water, the greater the oxidation, thus altering the partition upon which the method of separation was based.

XIII. The Mechanism of Aldehyde Autoxidation

Our observations during the course of this research led us to the following conclusions:

1. The peracid was an intermediate product in every case of light or dark autoxidation. As soon as the aldehyde had absorbed any oxygen (even though inhibitors, other aldehydes, or other substances, had been added), quick removal of the oxidized aldehyde and its mixture with an alcoholic potassium iodide solution resulted in the liberation of iodine, which could be titrated with N/100 $Na_2S_2O_3$.

2. The concentration of peracid increased as the absorption of oxygen continued. The aldehyde (4 cc.) was allowed to absorb the oxygen freely, and at definite time intervals five drops were titrated with N/100 $Na_2S_2O_3$. The results appear in Table XIII.

TABLE XIII

Peracid Formation in the Autoxidation of Aldehydes

Heptaldehyde Minutes	Heptaldehyde ccs. $Na_2S_2O_3$	Benzaldehyde Minutes	Benzaldehyde ccs. $Na_2S_2O_3$	*a*-Amylcinnamaldehyde Minutes	*a*-Amylcinnamaldehyde ccs. $Na_2S_2O_3$	4ccs. Heptaldehyde and 0.5 ccs. Butyl Alcohol Minutes	4ccs. Heptaldehyde and 0.5 ccs. Butyl Alcohol ccs. $Na_2S_2O_3$
2	1.10	2	.60	2	.10	2	.20
10	2.10	10	1.70	10	.50	10	.30
30	3.00	30	2.50	30	1.50	30	.50
		60	3.50	60	4.00		

3. The peracid formed then reacted with unchanged aldehyde. This was followed by allowing 4 cc. of aldehyde to absorb sufficient oxygen to form an appreciable quantity of peracid. The oxygen was then displaced by nitrogen and at definite time intervals five drops were titrated with N/100 $Na_2S_2O_3$. Table XIV shows the results of studying this secondary reaction.

4. The autoxidation of an aldehyde is usually accompanied by the liberation of carbon dioxide. We determined the amount of this gas formed as follows: After a certain quantity of oxygen had been absorbed by the 4 cc. of aldehyde used, the gas above the aldehyde was forced back into the burette by adding water to the side-arm graduate. When the liquid had completely displaced the gas, it was drained off and the absorption chamber thoroughly cleaned in the regular way. A saturated barium hydroxide solution was then run into the chamber and, as all but 4 cc. flowed out, the gas from the burette flowed in. The reading on the burette was taken, the shaker started and continued until absorption ceased. The difference in the reading then represented the carbon dioxide absorbed. By turning stopcock T, the unabsorbed gas was expelled and fresh barium hydroxide solution run in. Then, by turning the stopcock as the liquid flowed out, the gas from the burette was admitted. In this manner, all of the gas in the burette was shaken with barium hydroxide and the amount of carbon dioxide evolved was determined quite accurately. As checks on this method, 25 cc. of pure oxygen treated similarly gave no absorption or cloudiness. Further, the fact that the benzaldehyde oxidation, in which no carbon dioxide is evolved, gave no cloudiness or differences in readings was also proof that the oxygen used was free from carbon dioxide.

Not all of the aldehydes gave sufficient carbon dioxide to be determined with reasonable accuracy. Those of benzaldehyde type (*i. e.* benzaldehyde, *p*-tolualdehyde, salicylaldehyde, anisaldehyde, etc.) gave no appreciable quantity. The others yielded sufficient to form a cloudy precipitate of barium carbonate. Some of the measurements taken are shown in Table XV.

A plausible explanation for the formation of carbon dioxide in the autoxidation of cinnamaldehyde types has been the formation of the keto acid, followed by an oxidative cleavage to carbon dioxide and a lower carbon acid, but such an explanation does not suffice in the case of the saturated aldehydes like heptaldehyde or phenylacetaldehyde. A possible alternative is that an activated acid or peracid molecule yields carbon dioxide with oxidation or decomposition. Pierce and Morey[33] have recently shown that carbon dioxide is formed in the photochemical decomposition of organic acids.

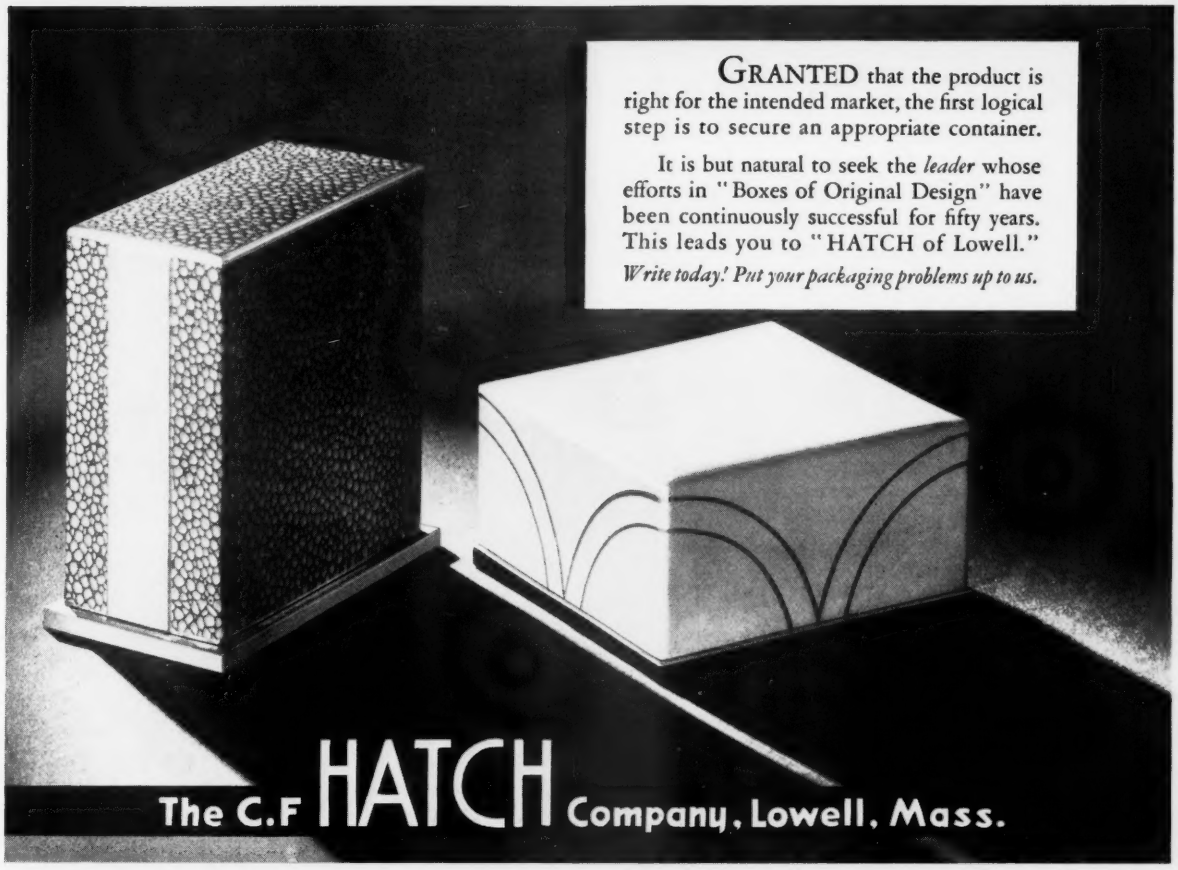
In their studies of the autoxidation of *alpha*-amylcinnamaldehyde, Bogert and Davidson[18] assumed, but did not prove, the formation of carbon dioxide. In our own experiments, this particular aldehyde was the one which showed the most obvious connection between oxygen absorbed and carbon dioxide evolved.

Another interesting peculiarity of this aldehyde was observed. In some preliminary experiments, it was attempted to show the effect of wall poisoning by oxidizing an aldehyde until the absorption rate had slowed considerably and then transferring this oxidized aldehyde to a clean chamber and noting what change, if any, this made in the rate. When *alpha*-amylcinnamaldehyde was used in these experiments, it was discovered that, in the first minute of the reaction, instead of absorption occurring a gas was evolved. The experiments were repeated, therefore, with nitrogen in the absorption chamber in place of oxygen, and the gas evolved was measured. Its carbon dioxide content was then determined in the way already described. Table XVI exhibits the results, which indicate clearly a definite relation between oxygen absorption and carbon

TABLE XIV

Reaction of Peracid Formed in Autoxidation of Aldehydes

Hydroxycitronellal Min. of titration	Hydroxycitronellal ccs. of N/100 $Na_2S_2O_3$	Benzaldehyde Min. of titration	Benzaldehyde ccs. of N/100 $Na_2S_2O_3$
0	6.6	0	1.05
7	5.8	5	0.70
14	4.9	10	0.40
21	3.2	15	0.10
28	2.9	20	0.0
36	1.8		
42	1.1		
49	.6		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dioxide evolution. At first, it was thought that this phenomenon was due to reaction of peracid; but actual tests showed that not only was the peracid concentration too small, but also the gas was evolved completely in thirty seconds on shaking, whereas the concentration of peracid formed in the autoxidation of this aldehyde was but very slightly lower after one minute. The fact that the gas was evolved even when the absorption chamber was filled with carbon dioxide, instead of oxygen, proved that it was not due to any solubility-gaseous concentration relation.

5. Wall poisoning in the autoxidation of an aldehyde is not the primary cause for the falling off in the oxidation velocity with time. In the case of those aldehydes which evolve an appreciable quantity of carbon dioxide, this may be responsible for the final cessation of the absorption, but it does not explain the retarding of the oxidation velocity before sufficient carbon dioxide is evolved to affect it.

The procedure adopted to study this phenomenon, which was observed in the case of the autoxidation rates of all the aldehydes used, was to oxidize the aldehyde until its oxidation rate had fallen appreciably, then to transfer this oxidized aldehyde to a clean absorption chamber and introduce fresh aldehyde in the old chamber. In every instance, the reaction rate of the oxidized aldehyde in the new chamber was unaffected by the transfer, and the fresh aldehyde in the used chamber behaved exactly as it would have done in a clean chamber. Two of these experiments are recorded in Table XVII.

Experiment No. 1 was conducted in daylight. Freshly distilled benzaldehyde, in chamber No. 1, was exposed to oxygen until the absorption rate had decreased appreciably. This oxidized aldehyde was transferred to chamber No. 2, and fresh aldehyde placed in chamber No. 1. Reactions 1, 2 and 3, in the table, record the cc. of oxygen absorbed per minute in the first filling of chamber No. 1 (Reaction 1), its rate when transferred to chamber No. 2 (Reaction 2), and the oxidation rate of the fresh aldehyde used to re-fill the used chamber No. 1 (Reaction 3).

Experiment No. 2 was carried out in the dark. The freshly distilled benzaldehyde was oxidized at 20° until the absorption rate was fairly constant (Reaction 1), when 2 cc. was removed and replaced by 2 cc. of fresh benzaldehyde. Reaction 2 shows the result upon the oxidation velocity produced by this substitution.

It seems quite clear from the above experiments that wall poisoning is not the cause for the decrease in the autoxidation rate of benzaldehyde, and similar experiments with other aldehydes gave similar results.

6. The results of all these various experiments help to throw additional light upon the mechanism of the autoxidation of aldehydes, its catalysis and inhibition, and in general support Backstrom's views on this subject.

TABLE XV

Carbon Dioxide Evolution in the Autoxidation of Aldehydes

4 ccs.:	ccs. of Oxygen Absorbed	ccs. of Carbon Dioxide Evolved
Heptaldehyde	117.3	1.70
	121.5	1.80
	142.0	3.30
	151.5	3.30
Phenylacetaldehyde	2.90	.20
	7.40	.30
Hydrocinnamaldehyde	1.15	.05
	4.45	.15
Cinnamaldehyde	24.7	1.60
	32.1	1.90
	40.9	1.80
	48.2	2.40
α-Amylcinnamaldehyde	15.9	2.00
	23.1	3.10
	30.2	4.60
	43.5	7.20

TABLE XVI

Cerbon Dioxide Determination

Oxygen absorbed	6.30 ccs.	15.50	35.10	50.40
Gas evolved	.40 ccs.	1.00	1.90	2.75
Barium hydroxide absorption	.40 ccs.	1.00	1.90	2.75

TABLE XVII

Wall Poisoning Effect upon the Autoxidation of Benzaldehyde

	Experiment No. 1			Experiment No. 2		
Reactions	1	2	3	Reactions	1	2
Minutes	ccs/min.	ccs./min.	ccs/min.	Minutes	ccs/min.	ccs/min
1	2.7	1.2	2.7	1	.14	.16
2	2.6	1.4	2.6	2	.13	.16
3	2.5	1.5	2.3	3	.12	.15
4	2.3	1.5	2.1	4	.11	.16
5	2.4	1.4	2.0	5	.12	.13
6	2.3	1.4	1.9	6	.11	.13
7	2.0	1.5	1.8	7	.10	.14
8	2.1	1.5	1.8	8	.10	.14
9	2.0	1.5	1.8	9	.11	.13
10	2.0	1.5	1.8	10	.10	.13
11	2.0	1.5	1.7	20	.10	.12
12	2.0	1.5	1.6	30	.09	.11
13	2.0	1.4	1.6	40	.09	.11
14	1.9	1.5	1.6			
15	1.8	1.4	1.6			
16	1.8	1.4	1.6			
17	1.9	1.3	1.7			
18	1.8	1.4				
19	1.8					
20	1.8					

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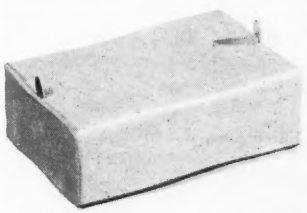

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Management Forum

By Francis Chilson
Production Engineer

Re-Lining Tanks and Kettles

Some months ago in this department we called attention to a recently perfected process for spraying metal on tank and kettle interiors without requiring their removal from their moorings. Any metal ductile enough to draw into wire may be sprayed by this process. Since we described it several jobs have been done in the trade with various kinds of alloys, stainless steel, monel, block tin, etc. This process, however, is not to be confused with a similar process which originated in Philadelphia and whose coatings are said to be porous. Tests have shown that the work done in the trade is not porous. It is interesting to note that through this process glass lined tanks, which have become worn or cracked, can be mended by patching the worn spots with block tin or any other suitable metal. It is said that work so done is permanent and that the glass does not crack away from the patches. The firm to which we refer, The Tickle Engineering Company of Brooklyn has done some *ticklish* jobs and have saved a number of firms the bother of dismantling equipment for shipment to relining plants.

Powder in Plastics

Recently we were commissioned to conduct some tests to determine whether delicately perfumed face powder would be impaired by packaging in plastic containers and also whether there would be any perceptible reaction between phenol-formaldehyde plastics and a group of essential oils. We could detect no odor in the plastic samples used for the test, nor could we detect any off notes after the test had been completed. The powder was contained in tightly closed boxes and kept in an oven at a constant temperature of 100° F. for a month. Upon examination we found—and two well-known perfumers agreed with us—that the odor of the powder was not only unimpaired but had actually developed a very pleasing bland character. This test not only established the suitability of plastics for powder packaging, but it also opened up an interesting avenue of speculation with regard to the aging of powder odors. Suppose that instead of allowing perfumed powder base to stand around for a month in loosely covered bins, it was permitted to mellow at a constant temperature of 100° F. in sealed metal containers. The indicated temperature is not high enough to impair delicate odor notes and since the powder would be contained in air tight cans no perfume could escape anyway. Such a procedure would probably be too expensive but it would be interesting to conduct a series of experiments with different kind of odors to see whether constant temperature actually has any effect on mellowing perfume.

Revolutionary Powder Package

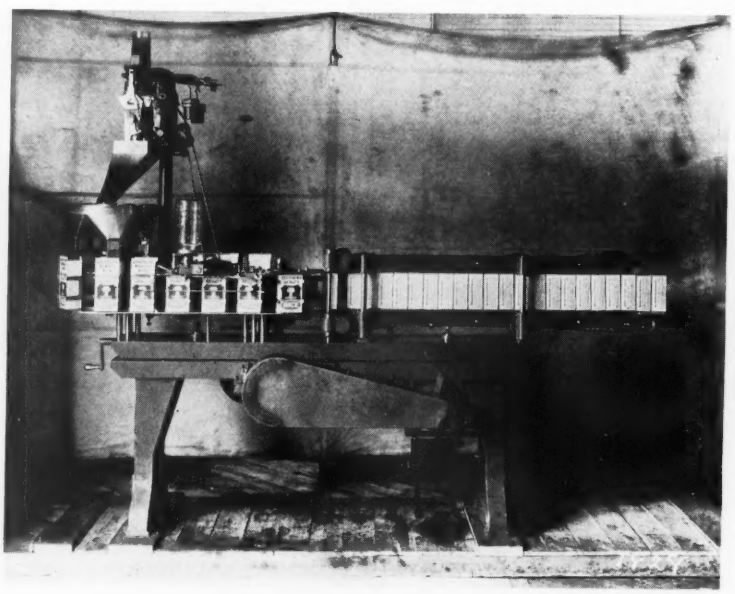
We've just got advance news of a new type of powder package which prevents absorption or impairment of the odor due to sizing or adhesives; it is in fact not assembled with adhesives; and it can be completely assembled on *standard* machinery thus saving the largest part of packaging expense. Moreover, within certain limits, it permits any combination of packaging materials to be used so that a powder manufacturer can benefit by its advantages without making a radical change in the appearance of his package. We'll have more dope and a story on this *soon!*

Molds, Dies, Punches

We received from A. Cavalla Inc. a very interesting catalogue describing the line of lipstick and suppository molds, rouge and compact dies and tablet punches and dies in which this company has specialized for twenty years. Cavalla states that he is the largest mold and die maker in the country and that most of the big private label houses buy from him. A copy will be sent on request and it's worth reading.

J. L. Ferguson Fillers

We had a snappy letter from the redoubtable old J. L. himself telling us all about his latest baby, a new carton filling and sealing machine, designed for free and semi-free flowing materials such as psyllium seed, bicarbonate of soda, spices, etc., etc. The machine is adjustable for a large range of sizes and one operator can run the machine, which will also seal the bottoms of the cartons, fill them, seal the tops and deliver them at a rate of thirty a minute. Nobody could beat that—excepting possibly old J. L. himself. As the illustration shows the machine is a pretty neat job.



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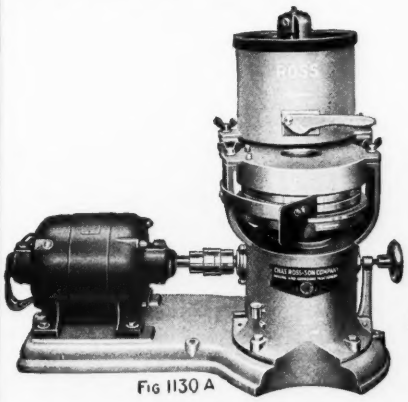

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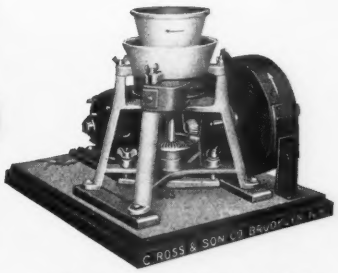

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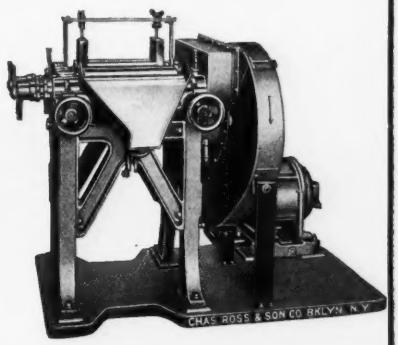

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The factory established ratios represent the volume of the same weight of the various materials. The work proved so interesting that we are planning to run determinations on the most popular brands of face powder to see whether fluffiness plays any part in the popularity of the different brands. We also believe that all physical constants of face powder and powder materials can be accurately measured.

Erratum

A printer's error in placing decimal points made it appear in the note on filtration which we published in this department last month that the rate of flow on paper was 3.4 ounces per square inch on asbestos and 2.1 ounces per square inch. The figures should have been respectively .34 and .21. A hell of a difference, what?

Recent Equipment Advances

Grinding appears to be progressing rapidly away from an empirical status toward one somewhat more scientific and controllable. Harding is working on a huge mill which will take lumps as large as two feet in diameter and reduce them progessively to 200 mesh. This outfit is still in the experimental stage but the prospect is that a small counterpart will be developed as soon as all kinks are ironed out.

Supex has developed a mill which appears to combine some of the features of the pulverizer and the pebble mill. Both material and pebbles are thrown from a rotary pan against a stationary grinding cylinder, from which they are returned to the pan again and the process repeated until the product has been thoroughly milled. An air stream passing through the mill carries the material to a centrifugal sifting device from which all oversize particles are returned to the mill again

Turbo Mixer Corp. has acquired from Lancaster Iron the rights to the Lancirick Mixer for dry and doughy materials. This machine is new and seems to be a development of the old fashioned chaser excepting that in place of rolls a rotating star whose points are equipped with offset ploughs are used.

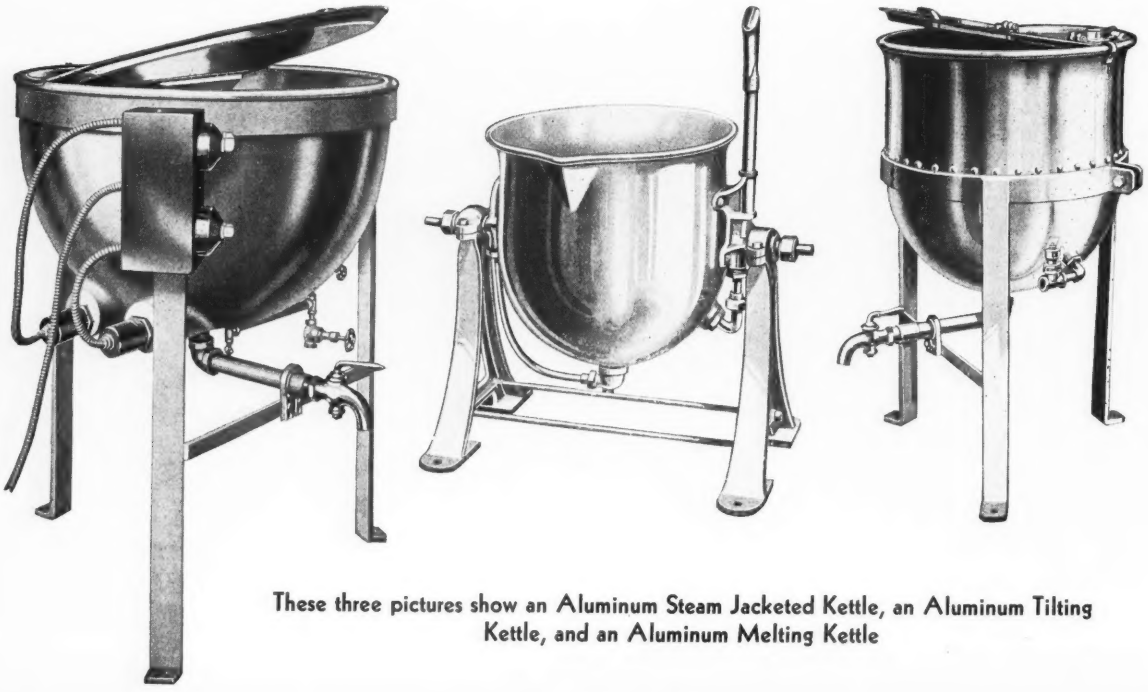
Charles Ross & Son are working on an epicyclic colloid mill which is very simply constructed and is said to overcome heating objections. More dope on all these machines will be passed on as soon as available.

More Re: Conveyors

The Redler Conveyor Company has informed us that a means is being worked out whereby the Redler can be completely discharged so that it can be made available for small batch work like face powder. Harding has also developed something new in the conveyor line, but we don't know enough about it yet to say whether it is applicable to our problems. The machine is said to consist of a tubular, rotating casing containing an integral spiral. Rotation of the casing forces the material along in a mass without dust. It is said to be self discharging. Sounds interesting if true. Conveyors for dry materials interest us so much that we wonder if it would not be possible to convey material vertically between two parallel belts whose clearance could be adjusted by moving one of the belts in or out, thus providing a means for discharging the conveyor and at the same time increasing its adaptability for handling materials of different kinds. The belts could be cleaned at the top of the lift by means of rotating brushes and the whole system enclosed in a metal casing. It would be interesting to experiment with this. We're pretty sure that it would work in the horizontal plane, but we're not too certain about the vertical.

Nine Kinds of Water

A bulletin published by Arthur D. Little states that there are nine kinds of water. The discovery seems a little late. Now that we've got beer again, who gives a damn?



These three pictures show an Aluminum Steam Jacketed Kettle, an Aluminum Tilting Kettle, and an Aluminum Melting Kettle

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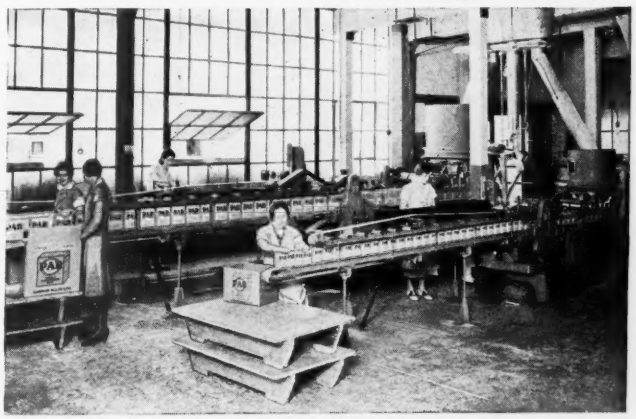
The "Par" filling record

of Two S & S Filling Machines is 60 8-oz. and 54 2½-lb. Packages per Minute

A Total of Over 37 Tons per Day!

AT the plant of Gordon-Allen Ltd., Oakland, California, two S & S Automatic Carton Filling and Sealing Machines are used to Package "Par", a well-known soap powder. Many packaging experts believe these machines are doing a distinguished job. One fills and seals an 8-oz. package of "Par" at the rate of sixty cartons per minute. The other fills and seals a 2-lb., 8-oz. carton at the surprising rate of fifty-four packages per minute!

Despite their uncanny speed, neither of these machines allows a variation in weight of more than ⅛ oz. and every carton is *cleanly* filled, without spillage and needless waste. From feeding to sealing the operation is entirely automatic.



The S & S Fillers used for packaging "Par" are one of many styles of Stokes & Smith Fillers carefully engineered for many different purposes and time-tried in many different plants with hundreds of different materials.

STOKES & SMITH Co

PACKAGING MACHINERY BOX MAKING MACHINERY

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New Tube Closer

George G. Rodgers has devised a new closing and folding machine for collapsible tubes which can be adapted either for clipped or clipless tubes. Rodgers says it's the most compact unit on the market measuring 13 x 13 x 18 inches high and weighs about 85 pounds. The outfit will close up to forty tubes a minute. These machines are on display at their new offices and showrooms at 183 Varick St., New York.

Refrigeration Speeds and Improves Shaving Cream Manufacture

Low temperatures, under complete control and regulation, have been put to a new and practical use—in the manufacture of shaving cream. This is a new departure in this industry. Modern refrigerating methods have made possible the speeding up of the process of cooling, and the more rapid changing of the product from liquid form to creamy consistency. A number of such applications have recently been made by the York Ice Machinery Corporation, of York, Pa., the world's largest designers and manufacturers of industrial refrigerating equipment, for several of the largest manufacturers of shaving creams.

Prior to the installation of this refrigerating equipment, cooling was secured by the circulating of water. Shaving cream, in the original stage of its manufacture, is of course a liquid, and must be maintained at a high initial temperature to assure the proper combining of its several ingredients. The water method of cooling limited the process to a considerable degree, both as to speed, and as to the final temperature of the product. The present refrigerating process not only changes the product from liquid to cream form in a much shorter time by reducing the temperature quickly to the exact degree required to effect this change of form, but improves the smoothness and texture of the cream.

The rapid cooling is accomplished by flowing the cream on to the top of a slowly revolving hollow drum, through which is circulated the refrigerating element, cold brine. The brine is cooled in a specially designed horizontal shell and tube cooler, 6 ft. 9 in. long by 16 inches in diameter. The cooling takes place rapidly, and the speed of the drum can be controlled and regulated to permit the cream to be retained on the cold drum the exact time required to bring the cream to the desired temperature and paste-like consistency. The cream is retained on the cold drum surface, in other words, for only a limited portion of the drum's circumference. The cream is then removed from the drum, at the exact temperature and form desired, by means of a scraper, located at a predetermined point on the drum's circumference.

The cooling of the brine is accomplished by the direct expansion of ammonia, which is controlled by York Ammonia Float Regulators. The ammonia compression system consists of a standard York 6″ x 6″ two-cylinder vertical, single-acting, enclosed compressor, at 360 R.P.M., V-Belt driven by a 30 H.P. 1,200 R.P.M. motor, and the 16″ x 9′6″ horizontal shell and tube container mentioned above. Operation of the compressor is thermostatically controlled by brine temperature, thus insuring constant temperature of brine delivered to the drum.

The success of these applications of refrigeration to the acceleration of an important process of shaving cream manufacture, and the resulting improvement in the quality of the product, will undoubtedly lead to the further application and adaptation of modern refrigerating machinery and methods in the drug and cosmetic industry. For our industry certainly has many refrigerating problems peculiar to itself. In addition to shaving creams, there are such products as perfumes, shampoo liquids, mouth washes, hand soaps, beauty preparations, and countless molded products such as lipsticks, suppositories, etc., in which refrigeration is important, and can play a still more important part as the advantages of modern refrigeration become more generally recognized by the industry. The problem, up to now, has not been given the careful study it merits. But with the development, by leading manufacturers, of standardized, compact refrigerating equipment, many of the producers in our industry will doubtless find new and unusual ways of putting controlled temperatures to work in their plants.

A Handy Device

The General Electric has developed a device called the Thrustor which is designed to convert the electrical impulses of control instruments into mechanical force, as for instance when it is hooked up with a photoelectric cell to space packages going into machines or to sort packages on a conveyor. The device contains a plunger which works on the horizontal plane, and when actuated pushed the packages out of line or against a block as the case may require.

Heating of Colloids

Why is it that although colloid mills are designed to form stable emulsions, they sometimes "unstabilize" them? We've seen cases where a stable emulsion could be formed by gentle agitation but could not be made either by a colloid mill or a homogenizer. Both acted as separators. Neither of these were mucilaginous so that the question of too finely dispersing the filaments is out. Both were water-in-oil emulsions. What's the answer?

Industry's Books

Diatetics, by Alida Frances Pattee, 881 pages, A. F. Pattee, Mt. Vernon, N. Y., $2.75 postpaid.

This is the nineteenth edition of this complete reference book. Of particular interest to those in this field is the fact that the diet therapy section occupies two-thirds of the entire book. It also contains the present day diets of physicians arranged by them especially for this work together with diabetic and other food tables.

Henley's Formulas, Recipes and Processes, edited by Gardner D. Hiscox, 809 pages, Norman W. Henley Publishing Co., New York, $4.00 net.

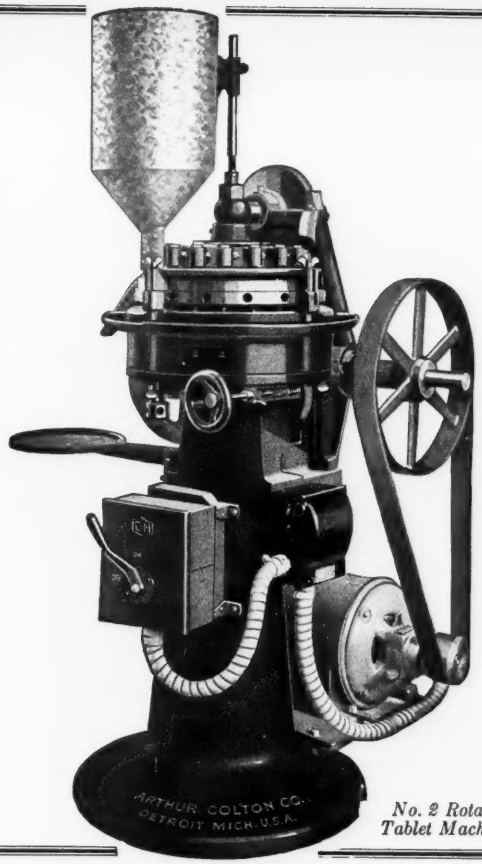
The new, improved, enlarged and revised edition of this familiar reference book is now available. It is said to contain over 10,000 formulas. Some of the subjects treated are cosmetics, dentifrices, depilatories, hair preparations, mouth washes, ointments, perfumes, etc.

The Industrial Discipline, by Rexford G. Tugwell, 241 pages, Columbia University Press, New York, $2.50 net.

In this work, Mr. Tugwell makes his contribution to the picture of our future industrialized society. He points out that by carrying our machine age to its logical conclusion we approach the end of involuntary labor. The only barrier to this is lack of social management. If we supply this, says Mr. Tugwell, through the medium of an industrial discipline, we shall really achieve a truly great destiny. Thus the machine becomes the slave of man and not man the slave of the machine. It is important, of course, that Mr. Tugwell is influential in determining policies of our government, but his ideas as a practical economist are of great value in their own right to every business man and industrial executive of today.

Human Nature and Management, by Ordway Tead, 333 pages, McGraw-Hill Book Co., New York, $3.50 net.

This book tells how to use psychology in managerial work. First, it sets forth the essentials of modern psychology and shows the point of view it implies toward problems of human relations; second, it helps the reader improve the conduct of his own mental life; and third, it shows concretely the methods and procedures which are psychologically sound in the management of people. The book should be very valuable to all executives who have to deal with people—which takes in about everybody in business.



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THE EXCHANGE ORANGE PRODUCTS CO., ONTARIO, CALIF.

New Drug Act

(*Continued from page 509*)

in accordance with the practice of the trade, labeled in substantial quantities at establishments other than the establishment where processed or packed, shall be exempted by regulations from the requirements of this paragraph during transportation from the establishment where processed or packed to an establishment for labeling, if such articles are labeled in conformity with the provisions of this Act prior to removal from such labeling establishment.

(c) If any word, statement or other information required on the label to avoid adulterated or misbranding under any provisions of this Act is not prominently placed thereon in such a manner as to be easily seen and in such terms as to be readily intelligible to the purchasers and users of such articles under customary conditions of purchase and use.

Misbranding of Food

Sec. 7. A food shall be deemed to be misbranded:

(a) If (1) its container is so made, formed, or filled as to mislead the purchaser, or (2) its contents fall below the standard of fill prescribed by regulations as hereinafter provided.

(b) If it is offered for sale under the name of another food.

(c) If it is an imitation of another food, except that no imitation shall be deemed to be misbranded under this paragraph if its label bears the word "imitation" in juxtaposition with and in type of the same size and prominence as the name of the food imitated.

(d) If it purports to be or is represented as a food for which a definition of identity has been prescribed by regulations as hereinafter provided, and (1) fails to bear on its label the name of the food defined in such terms as the regulations specify, or (2) fails to conform to the definition.

(e) If it purports to be or is represented as a food for which standards of quality have been prescribed by regulations as hereinafter provided, and (1) fails to state on its label, if so required by the regulations, a standard of quality in such terms as the regulations specify, or (2) falls below the standard stated on the label.

(f) If it purports to be or is represented as a food for which no definition of identity has been prescribed by regulations as hereinafter provided, and its label fails to bear (1) the common or usual name of the food, if any there be, and (2) the common or usual name of each ingredient thereof in order of predominance by weight; except that spices, flavors and artificial colors may be designated as such without naming each spice, flavor, or artificial color. The Secretary is hereby authorized to prescribe by regulations requirements for such further information on the label thereof as he may deem necessary to protect the public from deception.

Misbranding of Drugs

Sec. 8. A drug shall be deemed to be misbranded:

(a) (1) If its labeling bears the name of any disease for which the drug is not a specific cure but is a palliative, and fails to bear in juxtaposition with such name and in letters of the same size and prominence a statement that the drug is not a cure for such disease; or (2) if its labeling bears any representation, directly or by ambiguity or inference, concerning the effect of such drug which is contrary to the general agreement of medical opinion.

(b) If it is for internal use by man and contains any quantity of any of the following narcotic or hypnotic substances: Alpha eucaine, barbital, beta eucaine, bromal, cannabis, carbromal, chloral, coca, cocaine, codeine, heroin, morphine, opium, paraldehyde, peyote, sulphonmethane, or any narcotic or hypnotic derivative therefrom by actual or theoretical chemical reaction, and its label fails to bear the name and a statement, in the manner and form prescribed by regulations promulgated by the Secretary, of the quantity or proportion of such substance or derivative in juxtaposition with the statement "Warning, May be Habit-forming." The Secretary is hereby authorized, by regulations prescribed after notice and hearing, to designate as narcotics or hypnotics within the meaning of this paragraph such other substances as he may find to possess narcotic or hypnotic properties.

(c) If it contains any quantity of ethyl alcohol, ethyl ether, or chloroform, and its label fails to bear a statement, in the manner and form prescribed by regulations of the Secretary, of the quantity or proportion of such substance.

(d) If it is not subject to the provisions of paragraph (i) of this section, and its labeling fails to bear complete and explicit directions for use; provided, that the Secretary may by regulation exempt any drug from any requirement of this paragraph if he deems such requirement unnecessary for the protection of public health.

(e) If it is not subject to the provisions of paragraph (b) of section four and its label fails to bear (1) the common name of the drug, if any there be, and (2) the name and quantity or proportion of each medicinal or physiologically active ingredient thereof. The Secretary is hereby authorized to prescribe by regulations requirements for such further information on the label of such drug as he may deem necessary to protect the public health.

(f) If its name is the same as, or simulates, a name recognized in the United States Pharmacopoeia or National Formulary or any supplement thereto official at the time such drug is introduced into interstate commerce, and it is not packaged and labeled as prescribed therein.

(g) If it is a drug liable to deterioration, and is not packaged in such form and manner, or if its label fails to bear a statement of such precautions, as the Secretary may prescribe by regulations, after notice and hearing, for the protection of public health. The Secretary is hereby authorized to designate by regulations, prescribed after notice and hearing, as drugs liable to deterioration within the meaning of this paragraph, such drugs as he may find to be liable to deterioration.

(h) (1) If its container is so made, formed or filled as to mislead the purchasers; or (2) if it is an imitation of another drug; or (3) if it is offered for sale under the name of another drug.

(i) If it purports to be or is represented as a germicide, bactericide, disinfectant, or antiseptic for any use on or within the human or animal body and its labeling fails to bear a statement of each such use and, plainly and conspicuously and in juxtaposition therewith, the method and duration of application necessary to kill all micro-organisms in the vegetative or other active form with which it comes in contact when so used; except that no drug shall be deemed to be misbranded under this paragraph if its label bears a statement that it is a germicide, bactericide, disinfectant, or antiseptic for specific kinds of micro-organisms only, and its labeling bears a statement of each purported or represented use and, plainly and conspicuously and in juxtaposition therewith, the conditions, including duration of application, under which the drug kills all such specific kinds of micro-organisms in the vegetative or other active form with which it comes in contact when so used.

False Advertisement

Sec. 9. (a) An advertisement of a food, drug, or cosmetic shall be deemed to be false if in any particular it is untrue, or by ambiguity or inference creates a misleading impression regarding such food, drug, or cosmetic.

(b) An advertisement of a drug shall also be deemed to be false if it includes (1) the name of any disease for which the drug is not a specific cure but is a palliative, and fails to state with equal prominence and in immediate connection with such name that the drug is not a cure for such disease; or (2) any representation, directly or by ambiguity or inference, concerning the effect of such drug which is contrary to the general agreement of medical opinion.

(c) To discourage the public advertisement for sale in interstate commerce of drugs for diseases wherein self-medication may be especially dangerous, or patently contrary to the interests of public health, any advertisement of a drug representing it directly or by ambiguity or inference to have any effect in the treatment of any of

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NIPAGIN M, NIPASOL M, and NIPABENZYL. Phenyl coefficients: 3, 17, and 109. Neutral, odorless and non-irritating.

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Tolerances for Poisonous Ingredients

Sec. 10. (a) If the Secretary finds that the presence of an added poisonous or added deleterious substance in or on food or cosmetics is or may be injurious to health, taking into account other ways in which the consumer or user may partake of or be exposed to the same or other poisonous or deleterious substances, then the Secretary shall by regulations promulgated after notice and hearing prohibit such added substances in or on food or cosmetics, or establish tolerances limiting the amount therein or thereon, to such extent as he may deem necessary to prevent such injury to health.

(b) The Secretary is hereby authorized to make regulations, after notice and hearing, for the certification of coal tar colors which he finds to be harmless for use in food.

Definitions and Standards for Food

Sec. 11. The Secretary is hereby authorized to fix, establish, and promulgate definitions of identity and standards of quality and fill of container for any food. Whenever the Secretary deems that for the purposes of this act any such definition or standard should be established for any food, he shall give notice of a proposed definition or standard and of the time and place of a public hearing to be held thereon not less than thirty days after the date of such notice. After such public hearing the Secretary may fix, establish, and promulgate a definition or standard for such food. The definition or standard so promulgated shall become effective on a date fixed by the Secretary, which date shall not be prior to ninety days after its promulgation. Any such definition or standard may be amended or repealed after notice and hearing as hereinbefore provided, and if amended or repealed, the amendment or repeal shall become effective in the manner and at the time hereinbefore provided.

Permit Factories

Sec. 12. (a) Whenever the Secretary finds that the distribution in interstate commerce of any class of food, drugs, or cosmetics may, by reason of conditions surrounding the manufacture, processing, or packing thereof, be injurious to health, and such injurious nature cannot be adequately determined after such articles have entered interstate commerce, he is authorized, after notice and hearing, to make such regulations governing the conditions of manufacture, processing, or packing as he deems necessary to protect the public health, and requiring manufacturers, processors, and packers of such class of articles to hold a permit conditioned on compliance with such regulations.

(b) The Secretary is authorized to issue such permits for such periods of time as he may by regulations prescribe and to make regulations governing the issuance and renewal thereof. The Secretary is authorized to suspend immediately upon notice any permit issued under authority of this section if it is found that any of the conditions of the permit have been violated. The Secretary may reinstate the permit whenever, after hearing and an inspection of the establishment, it is found that adequate measures have been taken to comply with the conditions of the original permit.

(c) Any officer or employe duly designated by the Secretary shall have access to any factory or establishment, the operator of which holds a permit from the Secretary, for the purpose of ascertaining whether or not the conditions of the permit are being complied with, and denial of access for such inspection shall be ground for suspension of the permit until such access is freely given by the operator.

Factory Inspection

Sec. 13. (a) In order adequately to regulate interstate commerce in food, drugs, and cosmetics, and enforce the provisions of this act, officers or employes duly designated by the Secretary, after first obtaining permission of the owner, operator, or custodian thereof, are authorized (1) to enter any factory, warehouse, or establishment in which food, drugs, or cosmetics are manufactured, processed, packed or held for shipment in interstate commerce or are held after such shipment, or to enter any vehicle being used to transport such food, drugs, or cosmetics in interstate commerce; and (2) to inspect such factory, warehouse, establishment, or vehicle and all equipment, methods, processes, finished and unfinished materials, containers, and labels there used or stored.

(b) (1) The several District Courts of the United States are hereby vested with jurisdiction to restrain by injunction, temporary or permanent, the shipment in interstate commerce or delivery after receipt in interstate commerce of any food, drug, or cosmetic from or by any factory, warehouse, establishment, or vehicle, if the owner, operator, or custodian thereof has denied to officers or employes duly designated by the Secretary permission so to enter and inspect such factory, warehouse, establishment, or vehicle and equipment, methods, processes, finished and unfinished materials, containers, and labels there used or stored. Whenever such permission is granted, the injunction issued pursuant to this paragraph shall be dissolved, or may be continued in force subject to such conditions governing the inspection as the court may order; and (2) violation of any such injunction may be summarily tried and punished by the court as a contempt. Such contempt proceedings may be instituted by order of the court or by the filing of an information by the United States Attorney.

Records of Interstate Shipment

Sec. 14. For the purpose of enforcing the provisions of this act, carriers subject to the Interstate Commerce Act, as amended (U. S. C., title 49), and other carriers engaged in interstate commerce, and persons receiving food, drugs, or cosmetics in interstate commerce, shall, upon the request of an officer or employe duly designated by the Secretary, permit such officer or employe to have access to and to copy all records showing the movement in interstate commerce of any food, drug, or cosmetic, and the nature, kind, quantity, shipper, and consignee thereof, and it shall be unlawful for any such carrier or person to fail to permit such access to and copying of any record so requested: Provided, that evidence obtained under this section shall not be used in a criminal prosecution of the person from whom obtained.

Investigations, Institution of Actions

Sec. 15. (a) The Secretary is authorized to conduct examinations and investigations for the purposes of this act through officers and employes of the Department of Agriculture or through any health,

Hair

Preparations

Manufacturers of modern hair preparations will find these materials of decided interest to them. We carry a complete line of high quality materials used in the manufacture of wave-sets, shampoos, brilliantines, hair tints and all other types of hair preparations. Investigate the possibilities of the following:

Ammonium Carbonate
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Gum Paragon, the gum for finger-wave compounds
Gum Tragacanth
Hair tint colors
Isopropyl Alcohol for finger wave concentrates
Magnesium Carbonate (white henna)
Methyl-para-oxybenzoate, an excellent preservative
Mineral Oil for brilliantines
Oxy-quinoline sulfate, a powerful antiseptic
Pectin
Presergum, a preservative for gums and quince seed
Salicylic Acid U. S. P.
Shampoo Base, natural, opal, tar or mint color
Sodium Benzoate, U. S. P.
Sodium Perborate, bleach
Soluble Olive Oil for shampoos
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Gives a note softer and finer than Amyl Cinnamic Aldehyde, and a more "natural" effect in the final compound.

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CONVALLAROL

New chemical product of particular interest as a base and fixative for Lily of the Valley. Extremely lasting, it helps to smooth and blend compounds into which it is introduced.

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AROMATIC CHEMICALS OF THE UTMOST PURITY

For the Development of:

Lilac

Aldehyde F K
Cyclamal
Fixateur Resin
Iso Butyl Furyl Propionate
Phenyl Propyl Aldehyde
Benzyl Acetate Ia
Benzyl Alcohol
Hyacinthin Special

Lily

Cyclamal
Iso Butyl Furyl Propionate
Agfarnol
Rosein
Lily Base 2067
Mugone
Muguet I
Phenyl Propyl Alcohol

Neroli—Orange Blossom

Bigarol
Orangeol A
Orangeol B
Bigaradia

Carnation

Carnetton
Pimenol
Floranol
Orrison M

Rose

Floranol
Phenacetol
Rosefolia
Rosamen
Rhodinol
Citronellol
Geraniol
Santarol
Ambriol
Citronellol Rosee

Jasmin

Jasmolid
Jasmenol
Indol
Camomile Body
Benzyl Acetate Ia
Benzyl Alcohol
Jasmin Basis 42
Jasminum

Gardenia

Gardineol
Styralyl Acetate
Styralyl Alcohol
Indolene

For Fixation

Ambre Grisea Art.
Ambriol
Ambrette Base 806
Arosol
Fixateur Resin
Oponiax
Indol
Tetra Hydro Para Methyl Quinolene
Rosamen

GENERAL DRUG CO.
170 Varick Street
New York

907 Elliott Street
Windsor, Ont.

556 W. Congress Street
Chicago, Ill.
Phone: HArrison 7441

food, or drug officer or employe of any State, territory, or political subdivision thereof, duly commissioned by the Secretary.

(b) It shall be the duty of each United States Attorney to whom the Secretary reports any violation for institution of criminal, libel for condemnation, or other proceedings under this act, or to whom any health, food, or drug officer of any State, or territory, or political subdivision thereof, presents evidence satisfactory to the United States Attorney of any such violation, to cause appropriate proceedings to be instituted in the proper courts of the United States without delay. All suits instituted under this act shall be by and in the name of the United States.

(c) The Secretary shall, before reporting any violation of this act to the United States Attorney for institution of criminal proceedings thereunder, afford due notice and opportunity for hearing to interested parties in accordance with such regulations as the Secretary shall prescribe. The report of the Secretary to the United States Attorney for the institution of criminal proceedings under this act shall be accompanied by findings of the appropriate officers and employes duly authenticated under their oaths.

Seizure

Sec. 16. (a) Any article of food, drug, or cosmetic in interstate commerce that is adulterated or misbranded or that has been manufactured processed, or packed in a factory or establishment, the operator of which did not, at the time of manufacture, processing, or packing, hold a valid permit if so required by regulations under section 12, shall be liable to be proceeded against while in interstate commerce or at any time thereafter on libel of information and condemned in any District Court of the United States within the jurisdiction of which the article is found. The article shall be liable to seizure (1) by process pursuant to the libel, or (2) if a chief of station or other officer of the Food and Drug Administration, duly designated by the Secretary, has probable cause to believe that the article is so adulterated as to be imminently dangerous to health, then by order of such officer, issued under his oath of office, particularly describing the article to be seized, the place where located, and the officer or employe to make the seizure. In case of seizure pursuant to any such order, the jurisdiction of the court shall attach upon such seizure. Any article seized pursuant to any such order shall thereupon be promptly placed in the custody of the court and a libel of information shall be promptly filed for condemnation thereof.

(b) If recovery is had in any suit or proceeding against any officer or employe by reason of a seizure pursuant to any such order, and the court certifies that there is probable cause for the acts done by such officer or employe, or that he acted under the direction of the Secretary or a duly designated officer of the Food and Drug Administration, no execution shall issue against such officer or employe, but the amount so recovered shall upon final judgment be provided for and paid out of appropriations for the administration of this act.

(c) The court may, by order at any time before trial, allow any party to a condemnation proceeding to obtain a representative sample of the article seized.

(d) Any article of food, drug, or cosmetic condemned under this section shall, after entry of the decree, be disposed by destruction or sale as the court may, in accordance with the provisions of this section, direct, and the proceeds thereof, if sold, less the legal costs and charges, shall be paid into the Treasury of the United States; but such article shall not be sold under such decree contrary to the provisions of this act or the laws of the jurisdiction in which sold: Provided, that after entry of the decree and upon the payment of the costs of such proceedings and the execution of a good and sufficient bond conditioned that such article of food, drug, or cosmetic shall not be sold or disposed of contrary to the provisions of this act or the laws of any State or territory, the court may by order direct that such article be delivered to the owner thereof to be destroyed or brought into compliance with the provisions of this act under the supervision of an officer or employe duly designated by the Secretary, and the expenses of such supervision shall be paid by the party obtaining release of the article under bond. Any article condemned by reason of the manufacturer, processor, or packer not holding a valid permit when so required by regulations under section 12 shall be disposed of by destruction.

(e) The proceedings in cases under this section shall conform, as nearly as may be, to the proceedings in admiralty; except that either party may demand trial by jury of any issue of fact joined in any such case.

(f) When a decree of condemnation is entered against the article, court costs and fees, and storage and other proper expenses, shall be awarded against the person, if any, intervening as claimant of the article.

Penalties

Sec. 17. (a) The following acts are hereby prohibited:

(1) The introduction into interstate commerce of any food, drug, or cosmetic that is adulterated or misbranded.

(2) The receipt in interstate commerce of any food, drug, or cosmetic that is adulterated or misbranded and the delivery or proferred delivery thereof in the original unbroken package for pay or otherwise.

(3) The dissemination of any false advertisement, by radio broadcast, United States Mails, or in interstate commerce for the purpose of inducing, directly or indirectly, the purchase of food, drugs, or cosmetics.

(4) The dissemination of a false advertisement by any means for the purpose of inducing, directly or indirectly, the sale of food, drugs, or cosmetics in interstate commerce.

(5) The introduction into interstate commerce of any food, drug or cosmetic if the manufacturer, processor, or packer does not hold a valid permit when so required by regulations under section 12.

(6) The refusal to permit access to or copying of any record as required by section 14.

(b) Any person who violates or causes to be violated any of the provisions of paragraph (a) of this section shall be guilty of a misdemeanor and shall on conviction thereof be subject to imprisonment for not more than one year, or a fine of not less than $100 nor more than $1,000, or both such imprisonment and fine; and for a second or subsequent offense imprisonment for not more than two years, or a fine of not less than $500 nor more than $3,000, or both such imprisonment and fine.

(c) Notwithstanding the provisions of paragraph (b) of this section, in case of a wilful offense the penalty shall be imprisonment for not less than six months nor more than three years, or a fine of not less than $1,000 nor more than $10,000, or both such imprisonment and fine.

(d) No person acting in the capacity of publisher, advertising agency, or radio broadcast licensee shall be prosecuted under paragraphs (b) or (c) of this section for disseminating a false advertisement if, on request of an officer or employe duly designated by the Secretary, he furnishes the name and post office address of the person who contracted for or caused him to disseminate such advertisement.

(e) No dealer shall be prosecuted under paragraph (b) of this section if he establishes a guaranty or undertaking signed by the person residing in the United States from whom he received the article of food, drug, or cosmetic, or the advertising copy therefor, to the effect that such person assumes full responsibility for any violation of this act, designating it, which may be incurred by the introduction of such article into interstate commerce or by the dissemination of such advertising. To afford protection, such guaranty or undertaking shall contain the name and address of the person furnishing such guaranty or undertaking, and such person shall be amenable to the prosecution and penalties which would attach in due course to the dealer under the provisions of this act.

(f) Any person who forges, counterfeits, simulates, or falsely represents, or without proper authority uses any mark, stamp, tag, label, or other identification devices authorized by the provisions of sections 12

(*Continued on page 566*)

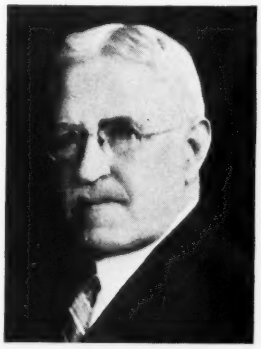
News

People

H. K. Mulford Honored

At the 111th annual commencement of the Philadelphia College of Pharmacy & Science, held June 7, Henry K. Mulford was honored with the degree of master of pharmacy.

Henry K. Mulford is director of the biological and research laboratories of the



H. K. Mulford

National Drug Co. and president of Mulford Colloid Laboratories, Philadelphia. He is also the founder and long was the directing head of the H. K. Mulford Co., pioneer producers of vaccines and serums. This company is now merged with Sharp & Dohme, Philadelphia. He completed his undergraduate work at the Philadelphia College in 1887.

Dietrich Joins Mennen

F. S. Dieterich has resigned from the staff of Frank Presbrey Co., New York, to join the Mennen Co., Newark, N. J., where he will be in charge of advertising and sales promotion.

R. & H. Changes

Dr. E. A. Rykenboer has been appointed general manager of The R. & H. Chemicals Department of the du Pont Company to succeed C. K. Davis, who was recently elected president and general manager of the Remington Arms Co., Inc., and Milton Kutz has been appointed assistant general manager of the department to succeed Dr. Rykenboer.

Radnitz Heads Antoine de Paris

Samuel E. Radnitz, at one time sales manager of Marinello, Inc., New York, has been appointed managing director of Antoine de Paris, that city.

Glidden Quits Affiliated Products

O. E. Glidden has resigned as president, and Roy Glidden as treasurer, of Affiliated Products, Inc., Chicago.

Lowen with Schultz-Illinois-Star

Stanley Lowen has resigned as New York representative for the Ferdinand Buedingen Co., Inc., Rochester, N. Y., to devote his full time to the position of Eastern representative of the Schultz-Illinois-Star Co., Chicago, manufacturer of odd-shape boxes.

Canaday-Lentheric Manager

Wilbur D. Canaday has been appointed general sales manager for Lentheric, Inc., New York. As sales manager of the Home Necessities division of E. R. Squibb &

W. D. Canaday

Sons, he has been successfully handling the sales and distribution of that group of products. He was born in New Castle, Ind., and is a graduate of Harvard University. He was commissioned a captain of infantry and saw service in the World War until 1919 when be became affiliated with Lehn & Fink, Inc., New York.

He has been succeeded as sales manager of the Home Necessities division by R. J. Comyns.

Watson to California

Rupert C. Watson, specializing in the products of M. Naef & Co. for Ungerer & Co., New York, left that city June 3 on

R. C. Watson

an extended Western trip. He planned to spend about a week in Chicago, call on the trade between there and Kansas City and from there go on to California, returning to New York towards the end of July.

Amouroux—Manager Molyneux

Pierre Amouroux, formerly sales manager, Houbigant, Inc., New York, has been appointed vice-president and general manager of Les Parfums de Molyneux, that city.

Squibb Advances Keim and Hearn

R. D. Keim has been elected vice-president and director of sales of E. R. Squibb & Sons, New York. He has been the company's general sales manager since 1917.

He was the first regular salesman em-

R. D. Keim

ployed by E. R. Squibb & Sons, his affiliation dating from December 29, 1903. When the first branch office of the House of Squibb was opened in Chicago in 1912, he became its manager, remaining in that capacity until he was called to New York in 1917 to become the company's general sales manager. In 1924, he was elected to the Board of Directors.

J. C. Hearn

His successor as general sales manager is Joseph C. Hearn who has been sales manager of the Vitamin and Petrolatum Products sales division.

Leek Visits Consumers

T. G. Leek, production manager of precipitated chalk for Industrial Chemical Sales Co., at Covington, Va., is on a trip making personal calls on the various

F. G. Leek

dentifrice manufacturers and other consumers of chalk, with the object of determining the requirements and specifications which these manufacturers require in the chalk used in their products. Mr. Leek has had many years experience in the production of chalk. Industrial Chemical Sales Co. is a subdivision of the West Virginia Pulp & Paper Co.

Munro—D. & R. Sales Mgr.

Russell Munro has been appointed sales manager of Daggett & Ramsdell, with headquarters in the company's New York office.

Roehl-Glazo Sales Manager

W. J. Roehl has been appointed sales manager of the Glazo Co., Inc., New York.

Associations

A.P.M.A. in Chicago

The program of the annual meeting of the American Pharmaceutical Manufacturers' at the Edgewater Beach Hotel, June 21 to 23 follows in full. In addition there will be three subjects coming up for special attention: consideration of a code of ethics and fair trade practice regulation for the drug industry; the new Food and Drugs bill; and the Drug Institute. It is expected that A. Kiefer Mayer will speak on the latter topic.

GENERAL PROGRAM

Wednesday, June 21 9.00 a. m.—Report of committee on time and place of meeting, H. B. Johnson, chairman. Report of associate members and entertainment committee, J. A. Beringhaus, chairman. Report of membership committee, E. H. Hessler, chairman. Report of memorial committee, B. L. Maltbie, chairman. Reception of delegates from other associations. Review and progress report of committee on pensions and insurance, Eliots Frosst, chairman. Review and progress, report of committee on returned goods, R. R. Patch, chairman. Report of legislative committee, C. D. Smith, chairman. Appointment of auditing, nominating and resolutions committee. Report of secretary. Report of treasurer. Address of president.

John G. Searle

Two o'clock p. m.—Medical and Pharmaceutical Trends; presiding officer, Charles Wesley Dunn. Opening address, Charles Wesley Dunn. "The Future of Medicine," Charles J. Whalen, M. D., editor of Illinois Medical Journal. "Medical Economics," R. G. Leland, M. D., director of Bureau of Medical Economics, American Medical Association. "Pharmaceutical Products of the Future," Paul

S. W. Fraser

Nicholas Leech, M. D., secretary, Council of Pharmacy and Chemistry, American Medical Association. "Medical Practice in 1950," H. Sheridan Baketel, M. D., editor, Medical Economics.

Thursday, June 22 9.00 a. m.—Report of committee on distribution costs, Carl N. Angst, chairman. "Facts, Figures, and Findings," Paul Klemtner. Report of committee on sales promotion, S. W. Fraser, chairman. "Pharmaceutical Advertising," L. G. Maison, M. D., president, Professional Advertising, Inc.

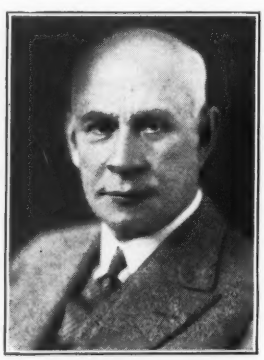
Friday, June 23 9.00 a. m.—Report of committee on sales problems, M. J. Brown, chairman. Round table discussion on "Salesmen's Sample Cases," opened by M. J. Brown. "Selling for Profits," Carle M. Bigelow, president, Bigelow, Kent, Williard & Co., Boston, Mass. "A Plan of Training Salesmen and Selecting the Correct Men to Be Trained," R. F. Spalding, G. D. Searle & Co. "Increasing Profits Through Sales Research," A. D. Brush, director, sales research and planning, Abbott Laboratories. Report of auditing committee. Report of resolutions committee. Election and installation of officers.

Proprietary Meeting

Breaking all records for attendance, the Proprietary Association swung into an interesting and spirited discussion of the many problems facing manufacturers, at the New York Biltmore on May 24, 25 and 26. One entire session was given over to a frank discussion of the pros and cons of the new Drug Institute of America. Another session was largely given over to a discussion of a possible change in the Food and Drugs Act. Still another period of the meeting was largely taken up by a discussion of the Industries' Recovery Act.

With regard to revision of the Food and Drugs Act, Counsel Harry B. Thompson stated that it is his opinion that no revision whatever is necessary. Mr. Thompson expressed the opinion that cosmetics should not be included in the Food and Drugs Act, but that separate legislation should be enacted to cover this class of products. With reference to the increase in the tax on alcohol, Mr. Thompson pointed out that as a matter of history, an increase in the tax on alcohol had resulted in decreased revenue, while after the tax was reduced, the revenue increased to a still greater amount.

Discussion of the Drug Institute of America was initiated by Wheeler Sammons, managing director of the Institute



Frank A. Blair

and A. Keifer Mayer, one of the first promoters of the Institute, Dr. W. E. Weiss, chairman of the executive committee of the Institute, and general manager of the Sterling Products division of Drug, Inc., President Frank A. Blair, and many other prominent men in the

Powco Brand Products

Neutral Powdered Soaps

As producers of the widest range of powdered neutral soaps, we can duplicate exactly or furnish from standard production, the exact soap characteristics you require.

Tested Persian Quince Seed

No one can judge the mucilaginous quality of Quince Seed simply by looking at it. There are several types of seed. The best is one of the true Persian varieties.

Seed that has been cleaned and rubbed may look fine—but most of its mucilage (which is on the surface) may be gone.

Powco Brand Tested Persian Quince Seed assures you real buying economy.

Concentrated Shaving Cream Base

A perfected, foolproof, concentrated product affording you 20 to 30% saving, without risk of production failures, compared with buying finished cream in bulk.

JOHN POWELL & CO., Inc.

114 East 32nd Street, New York, N. Y.

drug manufacturing business. Several prominent retailers were also present and entered into the discussion.

At the meeting on the day following the open forum on the Institute, President Blair announced that the Executive Committee of the Association had approved the Institute and asked every member of the Association to join the Institute and to get every one of their suppliers of raw materials and packages to join the Institute also. He said that the Institute should not be looked upon as their master, but rather as their aide. The members of the Association passed a motion confirming this action of the Executive Committee.

Frank A. Blair was reelected president of the Association to serve his eighteenth consecutive term. Other officers elected for the coming year are: Honorary Vice-president, Dr. V. Mott Pierce; First Vice-president, Robert L. Lund; Second Vice-president, E. K. Hyde; Third Vice-president; J. H. Horne; Secretary-treasurer, Charles P. Tyrell; Members of Executive Committee for three years, John F. Murray, Ellery Mann, William Y. Preyer.

A. M. T. A. Conference June 28

In an open letter to manufacturers, importers and suppliers of the cosmetic industry, the membership committee of the Associated Manufacturers of Toilet Articles has made an appeal for those interests to join the association and assist in the work that the body is doing toward improving conditions within the cosmetic industry. The committee has pointed out that the association now finds that it has anticipated the very steps that have been recommended by the Federal government and which have been made a part of the Industrial Recovery Bill.

The directors of the association, at a meeting May 26, recommended that the organization be among the first to present its code of practices to the President for approval. Steps have been taken to submit the plans to a trade practice conference and the Federal Trade Commission has issued a notice that a conference of the industry will be held June 28 at the Biltmore Hotel, New York. The letter points out that all manufacturers are being urged to join the trade associations of their particular industry, and the Associated Manufacturers of Toilet Articles is in a position to function efficiently and operate intelligently under the provisions of the Industrial Recovery Bill. It is therefore suggested to manufacturers or importers of perfumery, toilet and cosmetic items to file an application for active membership. Likewise it is suggested to manufacturers of accessories or dealers in raw materials to file an application for associate membership. Attached is blank application form.

New Cosmetic Institute

The Perfumery & Cosmetics Institute, which includes both manufacturers and distributors, has been incorporated in New York, with the following officers: president, Charles A. Pennock, Hudnut Sales Co.; vice-president, Jean Despres, Coty, Inc.; secretary and treasurer, A. J. Burke, Helena Rubinstein, Inc. Directors are Ralph H. Aronson, Bourjois, Inc., and Charles W. Darr, Harriet Hubbard Ayer, Inc.

Charles A. Pennock

Mark Eisner of the firm of Olvany, Eisner & Donnelly is counsel for the new institute and is engaged in preparing a code of fair trade practices to be submitted to the Government for approval. He is also preparing by-laws for the organization, with provisions for the admission of members in the trade and allied lines, and proper minority representation in order to comply with the provisions of the proposed bill.

Drug and Chem. Section Elects

The drug & chemical section of the New York Board of Trade, Inc., has added four new members to its executive committee, making a total of ten representatives.

The four additional members of the executive committee are James Chilcott, vice-president of the Maltine Co.; James Hayes, New York manager of Eli Lilly & Co.; A. A. Wasserscheid, New York manager of the Mallinckrodt Chemical Works, and Paul Muller, New York manager of the Owens Illinois Glass Co.

Present officers of the section are Francis J. McDonough, chairman; Samuel W. Fraser, vice chairman; S. Barksdale Penick, treasurer, and Ray Schlotterer, secretary.

Flavoring Extract Assn. in Chicago

Flavoring Extract Manufacturers Association held its annual convention in Chicago, June 19, 20 and 21. Among the speakers were Dr. J. M. Doran of the Bureau of Industrial Alcohol and Dr. C. P. Wilson of the California Fruit Growers Exchange.

Calif. Cos. Assn. Open House

The California Cosmetic Association recently held "open house" in Los Angeles for the members and their friends. After a delicious dinner, some interesting reports were made setting out the Association's success in its fight before the Legislature at Sacramento in securing the passing of laws guaranteeing manufacturers protection in their price schedules and also striking at ruinous and vicious trade practices.

The remainder of the evening was given over to the showing of moving-pictures covering the perfume and essential oil industries in the faraway places of the world. Through the courtesy of Fritzsche Brothers, Inc., New York, pictures were shown of the rose gardens of Bulgaria, the processes of distillation of the flower oils in Egypt, and the lavender oil industry in Southern France. George L. Ringel, vice president of Fritzsche Brothers Inc. was guest lecturer on this group of pictures and gave a graphic and comprehensive idea of what is being done in the fields covered during this picture hour. The evening of instructive entertainment was closed with a trip through the marvelous plant of Schimmel & Co. of Miltitz, Germany and everybody voted it a well worthwhile evening.

Institute of Medicine Mfrs.

Institute of Medicine Manufacturers, Inc., held a meeting of its Board of Governors in the Biltmore Hotel, New York, May 25th. The meeting was presided over by Dwight E. Austin, president of Thos. Leeming & Co., New York, who is president of the Institute. Twenty-eight package medicine manufacturers attended.

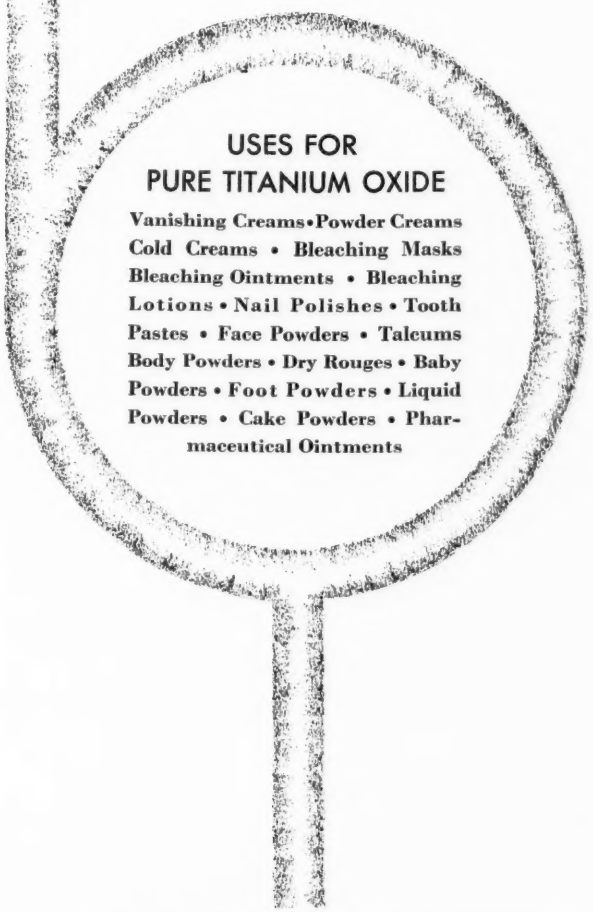
According to a bulletin issued by the Institute, "The board discussed and devised plans for a vigorous nation wide effort to acquaint newspapers and magazines with the problems of package medicines. It is hoped to enlist the support and sympathetic editorial comment of publishers and their cooperation in telling the public of the economic necessity and moral validity of the package medicine industry.

"In the face of the possibility of drastic legislation regulating the industry from Washington, it is believed that the Institute should concentrate its full time and attention to the presentation of the true position of package medicines.

"Any legislation of a regulatory nature to be effective and to protect the public must be practical and based upon public need. By bringing the true picture of the industry to light and giving the press and public the whole story, it is believed that much can be done to avoid serious legislative mistakes.

"The Institute of Medicine Manufacturers which has been incorporated and

This modern, whiter pigment replaces harsh irritants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● Chemical inertness and stability combined with unusual particle fineness make Pure Titanium Oxide a valuable pigment in cosmetic manufacture. This pigment never produces irritating alkaline reactions or other undesirable effects in cosmetics or pharmaceuticals ● This pure white opaque pigment is finer in particle size than other commonly used white pigments. It has excellent adhering qualities and remarkable tinting and covering power. When used in vanishing creams, talcum powders, face powders, lotions, tooth pastes and numerous other products, Pure Titanium Oxide improves stability, texture and color ● Every manufacturer of cosmetics and pharmaceuticals should carefully investigate the advantages of Pure Titanium Oxide. Another of our products, Titanox-B (barium base), also has wide application in manufacturing scores of products. All Titanox products are produced under strict laboratory supervision and are widely known for their highly uniform purity ● Get in touch with us now and let us cooperate in adapting Titanox pigments to your formulas. Write today.

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Manufacturers of . . . TITANOX-B (Barium Base)
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111 Broadway, New York, N. Y.; Carondelet Station, St. Louis, Mo.; Pacific Coast Distributor: National Lead Company of California, 2240 24th Street, San Francisco, Cal.; Canadian Distributor: Wilson, Paterson, Gifford, Ltd., 101 Murray Street, Montreal—132 St. Helen's Avenue, Toronto, Ont.

TITANOX

operating for a year and a half is devoted exclusively to the interests of independent manufacturers of package medicines (proprietaries). It is not to be confused with the more general Drug Institute which has just been formed."

de Navarre Heads Assn.

Michigan Toiletries & Extract Association has elected the following officers: president, Maison de Navarre; vice-president, C. R. Rollings, Seeley Mfg. Co.; secretary, R. M. Stevenson, Givaudan-Delawanna, Inc.

Bell Heads Manufacturing Chemists

Manufacturing Chemists' Association elected the following officers at its annual meeting at Shawnee-on-Delaware, June 1: president, William B. Bell, president, American Cyanamid Co.; first vice-president, E. M. Allen, president, Mathieson Alkali Works; second vice-president, George W. Merck, president, Merck & Co.; treasurer, J. W. McLaughlin, vice-president, Carbide & Carbon Chemicals Corp.; secretary, Warren N. Watson, 608 Woodward building, Washington.

Chain Drug Store Meetings

Associated Chain Drug Stores and the Affiliated Drug Stores will hold their annual meetings in the Congress Hotel, Chicago, September 14 and 15.

Harris Heads Oil Chemists

John P. Harris, manager of the Chicago office of Industrial Chemical Sales Co., Inc., New York, has been elected president of the American Oil Chemists' Society.

Foragers Outing

The Foragers will hold their annual outing at Green Gables, N. J., June 24.

New Wholesale Group

Independent Wholesale Druggists of America is being formed in New York by M. J. Wolfson, Star Drug Co.; Max Block, York Drug Co.; and J. Burkan, Fulton Drug Co.; to represent wholesale druggists not members of the large service and mutual associations under the National Recovery Act.

Beauty Institute

The Beauty Institute has been organized in New York to function under the terms of the National Recovery Act on behalf of the beauty shop trade and manufacturers supplying it. At a meeting on June 13 a code of practice was adopted and a nominating committee elected. Those chiefly instrumental in the forming of this group were Armand Blatt, Nusheen Inc.; J. A. Ladds, Nestle LeMur & Co.; Mono Abramson, Electric Manufacturing Co.; John Mitchell, J. Schanzenbach & Co.

Companies

Health Products on Vitamins

Health Products Corp., Newark, N. J., through its president, William H. Berg, has issued the following announcement:

"Certain recent news articles and advertisements reporting the decision of the U. S. Circuit Court of Appeals in the case of International Vitamin Corp. vs. E. R. Squibb & Son, upholding the so-called Marcus Vitamin Patent have, purposely or otherwise, created the erroneous impression that this patent has conferred upon its owners an exclusive privilege covering the extraction of Vitamins A and D from cod liver oils and the manufacture of cod liver oil concentrate tablets, capsules and solutions. This, obviously, is contrary not only to the terms of the patent itself but also to the interpretation of it by both the Lower and Appellate Courts in the above case.

"The Marcus Patent, far from giving a broad protection over all vitamin concentrates, simply covers a specific or limited method for the extraction of vitamins. There are other processes for the extraction of Vitamins A and D not within the narrow scope of this patent and that used by Health Products Corp. in the production of its cod liver oil concentrates in no way infringes upon the claims of this patent or any other.

"Health Products Corp. has been a pioneer in the field of vitamin concentrates, being one of the first to produce a stable cod liver oil concentrate tablet, which product now enjoys the distinction of acceptance by the American Medical Association. Its concentrate, a potent source of both Vitamins A and D is being widely used in various forms by food and pharmaceutical industries and as a concentrated cod liver oil enjoys an enviable reputation as a vitamin supplement for poultry and live stock feeds.

"The decision in the above case will therefore not effect in the slightest the continued manufacture and distribution of any of the company's products. Furthermore, should any threats of litigation or false and misleading advertisements be indulged in, Health Products Corp. will be compelled to seek legal redress for any damages sustained."

Ph. Chaleyer, Inc. Elects

Ph. Chaleyer, Inc., New York, has announced the election of new officers as follows: president, Philip Chaleyer; vice-president, Dr. F. A. Kertess; treasurer, M. C. Chaleyer; secretary, C. Kestenbaum

Tre-Jur Appoints

Tre-Jur, Inc., has announced the following new sales representatives: Thomas Jones in the metropolitan territory; Elton B. Andrews in Pennsylvania, and H. I. Salins in the Middle West.

Huisking Returns

Charles L. Huisking, president, Chas. L. Huisking & Co., New York, returned June 1 from a trip to Europe including Norway where the company has connections of long standing as a large importer of cod liver oil. Mr. Huisking found primary conditions in the cod liver oil market of such a nature that higher prices appear certain for the balance of the year.

Charles L. Huisking

Belmay Expands Staff

Belmay, Inc., New York, has announced that F. A. Jones, George J. Tombak and J. A. Landsman has joined its sales staff and will make their headquarters in the New York office. The Chicago office at 4875 N. Paulina st. is under the direction of James W. Powers. Irvin S. Zeluff, formerly chief chemist of Parfumerie Rigaud, has also become associated with the company to do research and consulting work with cosmetic manufacturers. Marion Lewis, well known perfumer for many years with leading essential oil and aromatics houses, is in charge of the company's perfume laboratory.

Vadsco Sales Elects

Vadsco Sales Corp. has elected the following officers: president, Samuel L. Antonow; treasurer, Gerald Sweeney, succeeding P. E. Fulcher; secretary, Robert E. Lee. The executive office of the company and its subsidiaries have been re-established at 580 Fifth ave., New York.

Pinaud Stops Free Goods

Pinaud, Inc., New York, has announced that there will be no more free goods allowance on any of its products after July 10th next. After that date, all of its goods will be sold at the flat list price, less the usual discount.

Cornell Labs. Hand Cream

Cornell Laboratories has been formed in Chicago by C. P. Holmberg to engage in the manufacture of a hand cream. The company's plans will be announced in greater detail later.

TOILET CREAMS *that float on a cloud of orange blossoms*

This refreshing romantic fragrance of Orange Blossoms adds an irresistible appeal to your toilet creams.

Orange Blossom No. 6142 may be used without blending or fortification of any kind to impart the real orange blossom fragrance. The rich delightful fragrance is so concentrated and persistent that only a relatively small quantity is needed to obtain excellent results.

We will be happy to send you working sample on request.

FRITZSCHE BROTHERS INC.

Proprietors of
PARFUMERIES DE SEILLANS
Seillans, France

78-84 BEEKMAN ST.,
NEW YORK, N. Y.

Sole Agents in U. S. and Canada for
SCHIMMEL & COMPANY
Miltitz (near Leipzig) Germany

Hoffmann-LaRoche Insures

Retirement annuities and group life insurance for employes of Hoffmann-La Roche, Inc., Nutley, N. J., have been established through contract with the Metropolitan Life Insurance Co., which will administer the plan on a cooperative basis whereby the employer and employes share the cost.

J. L. Hopkins Appoints

J. L. Hopkins & Co., New York, has appointed Harold S. Deane as its Chicago representative. He will also cover the states of Illinois, Indiana, Michigan and Wisconsin. George N. Cox will represent the company in the states of Kansas, Oklahoma, Arkansas, western Kansas and eastern Texas.

Corrugated Box Merger

Syracuse Container Corp. has taken over the business of Delavan Corrugated Box, Inc., Syracuse, N. Y. and the Seneca Fibre Products Co., Skaneateles, N. Y. The newly formed company is affiliated with the Robert Gair Company, Inc.

Dorothy Gray's Windows

Dorothy Gray, New York, has retained Lee Simonson, well-known theatrical designer to create a design to utilize the two-story windows in the company's Fifth ave., New York, location as a single display unit.

P. & G. Buys Hewitt Bros.

Proctor & Gamble Co., Cincinnati, has acquired controlling interest in Hewitt Bros. Soap Co., Dayton, O. The latter company has been reincorporated at Hewitt Soap Co., Inc., with the same officers: president and treasurer, James Hewitt; vice-president, Martin F. Schultes; secretary, Samuel Finn; assistant treasurer, F. R. Dinwiddie.

Elmo & Beiersdorf at A.M.A.

Elmo, Inc., Philadelphia, and P. Beiersdorf & Co., Inc., Long Island City, were among the exhibitors at the American Medical Association convention at Milwaukee, June 12 to 16.

John Powell Calif. Office

John Powell & Co., New York, has announced the opening of a branch office in Los Angeles with Ben S. Cottle in charge.

At Century of Progress

In addition to those companies announced in these pages last month, the Bristol-Myers Co. and the Iodent Co. are exhibiting at the Century of Progress Exposition in Chicago.

F. Buedingen Co. Appoints

Ferdinand Buedingen Co., Inc., Rochester, N. Y., has announced the appointment of Charles H. Tietjen as New York representative with offices at 122 E. 42 st., that city. Telephone CALedonia 5-7042.

The company is well known in this field as a manufacturer of high-grade paper boxes both machine and bench-made, and the opening of these new offices is part of an expansion program planned by W. John Buedingen, who is now devoting his entire time to the management of the company.

Ever-Dry to Waters

Ever-Dry Laboratories, Inc., Los Angeles, liquid deodorant, has appointed Waters Merchandising Corporation, New York, as eastern sales representative and marketing and advertising counsel.

Scheele Opens Business

Edwin H. Scheele, artist designer and consultant, with nineteen years experience, designing all types of packages for national and local manufacturers, has resigned as president of the Package Design Corp. He will continue to render the same service under his own name at 419 Fourth ave., New York.

Iodent Stops Carlton Labs.

In the Federal court for the Eastern District of New York, Judge Mortimer W. Byers has granted a preliminary injunction to the Iodent Chemical Co., Detroit, Mich., against the Carlton Laboratories, New York, restraining the latter from further manufacture of a tooth paste designated as "Arrodent."

"Ergoapiol" Not Infringed

As "ergot" and "apiol" are common names of drugs, their use as a designation in the combination, "Ergot-Apiol," does not infringe rights in the name, "Ergoapiol," Justice Carew, in part V, special term, Supreme Court of New York, has ruled.

The Martin H. Smith Co., New York, proprietor of the preparation called "Ergoapiol," sued to prevent the use of the name, "Ergot-Apiol" on a similar preparation by the American Pharmaceutical Co. that city. The court held that there had been no fraud, misleading confusion, deceit, damage, or injury in the defendant's offering of its product. The fact that the wholesale price of the defendant's article is $3 a dozen, against $14 for the plaintiff's would naturally lead druggists to push the former, the court said.

Judgment was given for the defendant, dismissing the complaint on the merits, with costs.

New Products

NEW ZEPP'S CARTON

T. Noonan & Sons Co., Boston, is offering its "Zepp's" hair dressing in a new, modern carton of green and black.

PAULA BELL COSMETICS

Martaba Distributing Co., Brooklyn, N. Y., is marketing a new line of cosmetics under the name of "Paula Bell."

DEE'S LEMON TOOTH PASTE

Dee's Manufacturing Co., Chicago, is introducing a new tooth paste, "Dee's Lemon Tooth Paste." Frank de Lugach is owner of the company and the Schweizer Steitz Co. is handling the advertising.

NEW RIGO LINE

Rigo Manufacturing Co. Nashville, Tenn., is introducing a new line of products including shaving cream and tooth paste.

TATOO LIPSTICK

Tatoo, Inc., Chicago, is marketing a new indelible lipstick, "Tatoo," in four shades. The new company is headed by J. L. Younghusband, who is also head of De Wan Laboratories, that city.

Removals

R. F. REVSON & CO.

R. F. Revson Co., New York, has announced its removal into larger quarters at 110 W. 40 st., that city. The expansion was necessitated by the company's increasing business and includes not only larger executive quarters but also new laboratory and storage space.

PRIMROSE HOUSE

Primrose House, Inc., has announced the removal of its New York offices from Cooper Square to the old Chelsea district. The company will occupy larger quarters on the ninth floor of the thoroughly modern Port Authority Commercial Building at Eighth to Ninth Avenues between Fifteenth and Sixteenth streets, that city.

FRAMERICAN IMPORTING CO.

Framerican Importing Co., New York, has announced its removal to new and larger quarters at 390 Fourth ave., that city.

RIVIERA PRODUCTS CO.

Riviera Products Co., Chicago, has announced its removal to new and larger quarters in that city at 215 West Ohio st.

DOE & INGALLS

Doe & Ingalls, Inc., Everett Station, Boston, Mass., has moved to new quarters at the corner of Garden st. and Vine st., that city.

Day Ahead

Leaders in any industry get and hold the lead by *creative* work.

There are always a few who are *a day ahead*—in their thinking, their planning, their creating and their merchandising.

It pays to be one of them. The glory is pleasing, and the profits are certainly welcome.

Take the lead in your field—step out—be a day ahead!

Our oils and our experience may be of great assistance. They often are.

For example:

Lilac Special—typical spring odor, like living flowers. Fragrant and delicate. $30.00 lb.

Red Rose—outstanding product in its field. $32.00 lb.

Jalma Fin—sweet, heavy odor, unsurpassed for perfumes and powders. $40.00 lb. (Lower priced versions are available.)

Bouquets—several new and interesting types for cream, powder, perfume, lotions and other preparations. Price ranges from $6.00 to $32.00 per lb.

Write and state your requirements. Give us your odor preference and price limits. Tell us what preparation you want to perfume. *Send us a sample* of it if possible.

Let us recommend sweet-smelling and easy-selling odors. Our experience may be of considerable help.

van Ameringen-Haebler, Inc.

Manufacturers and Importers of

Aromatic Essentials

Flavor Materials, Aromatic Chemicals
Essential Oils, Perfume Specialties

315 FOURTH AVENUE, NEW YORK

180 North Wacker Drive, Chicago 438 W. 48th Street, Los Angeles 42 Wellington Street, E., Toronto

Factory, Elizabeth, N. J.

Trade Literature

BURROUGHS-WELLCOME BOOKLET

Burroughs Wellcome & Co., Inc., New York, has issued an attractive 60-page booklet entitled "Chicago Exposition 1933—Souvenir & Guide."

OZOKERITE BOOKLET

Boryslaw Ozokerite Mines, Ltd., Boryslaw, Poland, has issued a new booklet entitled, "Technical Information for Users of Ozokerite." This contains a wealth of information including physical and chemical properties, constants and various suggested methods for its economical use. Copies may be obtained from R. F. Revson Co., New York.

Regulatory

New Ergot Standard

Committee of Revision of the U. S. Pharmacopoeia has issued interim revision announcement No. 1. The items concerned are ergot and lactose and the new standards become official January 1, 1934. The announcement follows in full.

ERGOTA

Ergot

Ergot.—Ergot of Rye, Secale cornutum P. I.

Ergot is the dried sclerotium of *Claviceps purpurea* (Fries) Tulasne (Fam. *Hypocreaceae*), developed on rye plants.

Ergot, when assayed by the method directed below, possesses a potency, per gram, equivalent to not less than that of 1 cc. of the standard fluidextract of ergot prepared as directed below. It contains not more than 5 per cent of seeds, fruits or other foreign organic matter.

Ergot should be dried at a low temperature and should then be protected from moisture.

Description and physical properties.

Unground Ergot—Cylindraceous, obscurely 3-angled, tapering towards both ends, obtuse, somewhat curved, from 1 to 4.5 cm. in length and from 3 to 5 mm. thick, longitudinally furrowed; externally dark purple or dark reddish-brown; fracture short; internally white, tinged with purple or gray; odor characteristic but free from mustiness or rancidity; taste oily; somewhat acrid, disagreeable.

Structure—A thin outer portion of small compact cells generally deep violet in color, turning red with 50 per cent sulfuric acid or with chloral hydrate T. S.; the inner portion, simulating parenchyma tissue, of thin-walled, colorless cells usually less than 0.015 mm. wide, but slightly elongated and containing numerous globules of fixed oil.

Powdered Ergot—Grayish to purplish-brown; containing purplish and whitish fragments of the outer tissue and of the thin-walled cells.

Test for identity—Shake 1 Gm. of powdered Ergot in a closed flask for about five minutes with 20 cc. of ether and about 15 drops of 20 per cent sulfuric acid. Filter, and shake the filtrate thoroughly with 15 drops of a cold, saturated sodium bicarbonate solution. The separated lower, aqueous layer is red or violet (*sclererythrin*).

Test for purity—When crushed or powdered, Ergot does not develop a rancid or ammoniacal odor upon the addition of hot water.

Assay—Reduce an appropriate quantity of the Ergot to be assayed, to a coarse powder, defat it by percolation with purified petroleum benzin as directed under the Fluidextract of Ergot and prepare a fluid preparation of the defatted drug, employing Type Process C for Fluidextracts (see U. S. P. X, page 160), using proportionate amounts of the drug and a menstruum consisting of 2 volumes of hydrochloric acid to each 98 volumes of diluted alcohol. Adjust the volume of the final mixed percolates so that 1 cc. is the equivalent of 1 Gm of the Ergot taken, and proceed as follows:

In the assay use single comb, white Leghorn cocks, less than twenty-four months old, weighing not less than 1.5 kilograms nor more than 2.5 kilograms.

Inject the fluid preparation to be assayed, deeply into the breast muscles of the cocks, in appropriate doses, and observe the effects within one hour to one hour and a half after the administration of the drug. The preparation so injected produces a darkening in the comb at least as extensive as that caused by the same doses of the standard fluidextract of ergot in the same cocks. This discoloration produced by the standard which is to be considered satisfactory for the purpose of comparison shall be such that the anterior portion of the comb shows no effect, the middle section is moderately darkened, and the posterior area shows a more pronounced darkening. Cocks must not be used for testing purposes at intervals shorter than one week and not until at least two days after all traces of discoloration from a previous test have disappeared.

Prepare a fluid preparation of Ergot, by the process described under Fluidextract of Ergot (see U. S. P. X, page 160), age this preparation for at least three months and then determine its strength by the assay method described above, and adjust its potency to correspond exactly to the potency on May 15, 1932, of the Standard Fluidextract of Ergot then being distributed by the Food and Drug Administration of the U. S. Department of Agriculture, and known as No. 2160. **Preserve** this standard fluidextract in a vacuum at a temperature not exceeding 6° C.

Preserve in air-tight containers.

Preparation—Fluidextractum Ergotae.

Average dose—Metric, 2 Gm.—Apothecaries, 30 grains.

FLUIDEXTRACTUM ERGOTAE

Fluidextract of Ergot

Fldext. Ergot.—Secalis cornuti extractum fluidum P. I.

Fluidextract of Ergot, when assayed by the method directed below possesses a potency per cubic centimeter equivalent to that of not less than 0.8 cc. and not more than 1.3 cc. of the standard fluidextract of ergot prepared as directed under *Ergota*.

Ergot, recently ground and in coarse powder.....1000 Gm.

Purified Petroleum Benzin, a sufficient quantity.

Pack the Ergot in a cylindrical percolator, and slowly percolate with purified petroleum benzin until a few drops of the percolate leave no greasy stain when evaporated from filter paper. Reject the benzin solution, remove the drug from the percolator, and dry the drug by exposure to the air. Then proceed to make the Fluidextract by Type Process C (see U. S. P. X, page 160), using a menstruum consisting of 2 volumes of hydrochloric acid and 98 volumes of diluted alcohol.

After obtaining 920 cc. of the mixed percolates, age the liquid for at least one month and then assay a portion as directed below, and, if necessary to make it conform to the required biological standard, adjust the volume of the finished Fluidextract, using the menstruum directed above.

Assay—Proceed as directed under *Ergota*, beginning with the words "In the Assay" (on line 9 of the Assay) and determine the potency of the mixed percolates in relation to the standard fluidextract.

Alcohol content, by volume, 37 to 42 per cent.

Average dose—Metric, 2 cc.—Apothecaries, 30 minims.

Lactose Starch

Under Lactosum, U. S. P. X (page 203) replace the tests for *dextrin*, *sucrose* and *glucose*, lines 24 to 28, with the following:

"Add 25 cc. of 70 per cent (by volume) alcohol to 5 Gm. of Lactose which has been reduced to a powder which will pass through a No. 100 standard mesh sieve. Shake the mixture frequently during thirty minutes and pass it through a filter of from 5 to 7 cm. diameter which has not been previously wetted. Evaporate 5 cc. of the filtrate to dryness on a steam bath and dissolve the residue in 5 cc. of distilled water. Transfer the solution to a test tube, filtering if necessary, and add 5 cc. of a solution prepared by dissolving 13.3 Gm. of cupric acetate in a mixture of 195 cc. of distilled water and 5 cc. of acetic acid. Immerse the test tube in boiling water or in actively flowing steam for three minutes, and allow it to stand at room temperature for twenty-five minutes; no red precipitate is produced (*dextrose*).

"Evaporate to dryness on a steam bath, another 10 cc. portion of the alcoholic solution, prepared for the preceding test, dissolve the residue in 9 cc. of distilled water, add 1 cc. of 25 per cent hydrochloric acid and 0.1 Gm. of resorcinol. Transfer the mixture to a thin-walled test tube of from 16 to 19 mm. internal diameter, and immerse the test tube in boiling water or actively flowing steam for eight minutes. The liquid remains colorless or assumes not more than a slightly yellow color (*sucrose*)."

Also replace the test for *starch*, lines 31 and 32, with the following:

"Dissolve 1 Gm. of Lactose in 10 cc. of distilled water, boil the solution for one minute, cool to room temperature and add 1 drop of iodine solution prepared by diluting 1 volume of iodine T.S. with 4 volumes of water; no red, violet or blue color is produced (*dextrin* or *starch*)."

New Lemon Oil Standard

The United States Department of Agriculture has announced a new definition for lemon oil which reads as follows: "Oil of lemon is a volatile oil expressed, without the aid of heat, from the free peel of lemon (citrus lemonia Ospeck) with or without previous separation of the pulp and peel." It is pointed out that this definition differs from the former in that it doesn't mention citral content or optical rotation. The former standard excluded the California lemon oil.

Drug Seizures

Federal Food and Drug Administration caused seizure in May of 140 consignments of foods and drugs found to violate the pure food and drug law, reports W. G. Campbell, Chief. The Administration also sent to the Solicitor of the Department of Agriculture recommendations for prosecution of cases involving 40 stocks of foods, drugs, and insecticides.

Federal seizures for May included a wide variety of foods and drugs—adulterated and misbranded livestock remedies; aspirin tablets; tincture of digitalis; proprietary remedies falsely and fraudulently labeled as having remedial value in the treatment of diseases including pyorrhea, goitre, rheumatism, acidosis, liver disorders, diabetes, hay fever, and deficiency disease.

AROMATIC CHEMICALS

Made in U. S. A.

In addition to our many well-known aromatic raw materials made in this country, we offer also the following:

Acetisoeugenol
Acetoeugenol
Amyl Benzoate
Amyl Cinnamate
Amyl Cinnamic Aldehyde
Amyl Phenyl Acetate
Benzyl Cinnamate
Benzoyl Iso Eugenol
Benzyl Propionate
Butyl Anthranylate
Butyl Phenyl Acetate
n-Butyl Salicylate
Citronellyl Acetate
Citronellyl Propionate
Cresyl Acetate Para
Cresyl Methyl Ether Para
Cresyl Phenyl Acetate Para
Di Methyl Anthranylate
Ethyl Iso Eugenol
Geranyl Propionate
Guaiyl Acetate
Iso Amyl Phenyl Acetate
Iso Amyl Cinnamate
Isobutyl Cinnamate
Isobutyl Hydrocinnamate
Isobutyl Phenyl Acetate
Isobutyl Salicylate
Isopropyl Cinnamate
Isopropyl Phenyl Acetate
Isopropyl Salicylate
Linalyl Propionate
Methyl Eugenol
Methyl Hydrocinnamate
Methyl Iso Eugenol
Methyl Naphthyl Ketone
Phenyl Ethyl Phenyl Acetate
Phenyl Ethyl Propionate
Phenyl Propyl Acetate
Phenyl Propyl Propionate
Rhodinol Phenyl Acetate
Tolyl Acetate
Tolyl Aldehyde

UNGERER & CO.

13-15 West 20th Street

NEW YORK

A. M. A. Accepts

MERCK PRODUCTS

Calcium Gluconate-Merck and Phenobarbital Sodium-Merck, manufactured by Merck & Co., Inc., Rahway, N. J.

SODIUM MORRHUATE

Sodium Morrhuate, as a sclerosing agent, prepared by G. D. Searle & Co., Chicago.

ANAEROBIC ANTITOXIN

Anaerobic Antitoxin, manufactured by Cutter Laboratory, Berkeley, Calif.

A. M. A. Rejects

D. C. P. 340

D. C. P. 340, manufactured by Parke, Davis & Co., because it is a preparation marketed under an uninformative name with unwarranted claims of therapeutic or prophylactic value.

NIAZO

Niazo, manufactured by the Schering Corp., because the available evidence does not show it to be an effective urinary antiseptic.

New J. & J. Plant

Johnson & Johnson, New Brunswick, N. J., has leased a large modern factory building in Chicago and plans to start operations there September 1.

Pope Honors Doherty

Frederick J. Pope, publisher of *Toilet Requisites*, gave a testimonial for his associate, James M. Doherty, Jr., at the Hotel Gotham, New York, June 13. Over 60 guests, including representatives of the cosmetic industry, and of advertising circles, were present. Among the speakers were Fred Pope and Grover Whalen.

Financial

Drug, Inc. to Dissolve

Reports from Boston indicate that plans are under way for the decentralization of Drug, Inc. The Boston News Bureau reported, June 12, that while the prospective decentralization of Drug, Inc., may be delayed some time because of legal difficulties growing out of taxes and other matters, some thought has been given to the number and identity of the blocks into which stock of Drug, Inc., numbering 3,501,499 shares, may be split.

One rumor, the News Bureau reported, is that for every 100 shares of Drug, there would be exchanged fifty shares of United Drug Company, fifty shares of Sterling Products, ten shares of Bristol-Myers, ten shares of Vick Chemical and five shares of Life Savers, Inc. This would reverse the process by which Drug, Inc., was evolved originally early in 1928 from Sterling Products, Inc., and United Drug, with subsequent acquisitions through 1930.

In early 1929 Life Savers entered the combination on a basis of one share of Drug for three and seven-tenths shares of Life Savers. Earnings of the American business then acquired were running at a rate of about $1,200,000 to $1,300,000 annually. It is understood that recently earnings of the unit have held up well.

Bristol-Myers was acquired late in the Summer of 1929, on the basis of one and one-eighth shares of Drug for each share of Bristol-Myers. Vick Chemical, one of the most substantial of the manufacturing units acquired, was merged in the middle on 1930. For each share of Vick, fifty-seven hundredths of a share of Drug was given.

Until it is definitely confirmed that the split-up will be along the lines outlined, and until recent earnings of the constituent companies are known, it will be impossible to place a market value on the new shares to be issued. Broadly speaking, the earnings of the constituent companies, other than United Drug, declined only 7.8 per cent from $17,382,670 in 1930 to $16,023,977 in 1932.

Amer. Com. Alcohol Rights

American Commercial Alcohol Co. has issued to stockholders rights to subscribe to new stock of the company in the ratio of one new share for each five old shares held by the subscriber. The shares are priced at $20 each and a total of 38,900 will be issued, bringing in to the company the sum of about $800,000 of which $794,000 will be used to pay off bank loans of that amount.

AMER. COMM. ALCOHOL

American Commercial Alcohol Corporation reports for three months ended March 31: Net profit after depreciation and charges $76,771, equal to 40 cents a share on 194,747 $20 par common shares, compared with $107,790, or 28 cents a share on 389,494 no-par common shares in first quarter last year. The 389,494 no-par value shares were subsequently changed to 194,747 shares at $20 par value.

SOLAR LABORATORIES

Solar Laboratories, Inc., New York has been awarded an income-tax abatement of $111,971, as a result of a decision of the United States Board of Tax Appeals, the Internal Revenue Bureau announced June 5.

Stocks Up

Prices of common stocks of drug and cosmetics corporations have enjoyed an almost steady increase since the low point of the year three months ago, according to the stock price indexes of the Standard Statistics Co., New York. A comparison of the drug and cosmetics index with that for 351 industrials over recent weeks, follows:—

(1926 average equals 100)

1933	*Drugs and Cosmetics*	*351 Industrials*
May 3	72.5	60.0
10	75.8	63.4
17	77.9	64.7
24	80.2	66.8
31	87.1	71.6
June 7	90.7	75.2
1933 High	90.7	75.2
Low	53.9	38.7
1932 High	88.3	61.6
Low	45.0	31.9

The Foreign Trade Department of the Proprietary Association, Washington, D. C., has received an inquiry from a drug firm in Honduras, C. A., for information concerning a specialty sold under the name of Pildoras Nuevas de Hydock. Neither the inquirer nor the Washington organization know the name or the address of the manufacturer of this product. Both will appreciate receiving any information available concerning it.

Obituaries

Albert L. Opper

Albert L. Opper, vice-president of the American Commercial Alcohol Corp., New York, died at his home in Bronxville, N. Y., on Monday June 12, after an illness which lasted three weeks. Mr. Opper was forty-eight years old. Formerly Chicago manager of American Distilling Company of Illinois, Mr. Opper came to New York as general sales manager of American Commercial Alcohol Corp. upon formation of the company in 1928.

Parker Cook

Parker Cook, vice-president of the Emerson Drug Co., Baltimore, died June 6 at Johns Hopkins Hospital after an illness of about two months. He was fifty-seven years old, having been born in Baltimore, February 13, 1873. He was president of the Emerson Hotel Co., vice-president and secretary of the Maryland Glass Corp., and vice-president and secretary of Emerson's Bromo-Seltzer, Inc. He had been associated with the late Captain Isaac E. Emerson in all of the latter's enterprises since about 1893.

F. G. Leuders Will

Frederick George Leuders, of Summit, N. J., president of George Leuders & Co., New York, disposed of an estate valued at about $291,000 under his will filed in the Surrogate Court. Mr. Leuders died May 4.

Mrs. Clothilde K. Leuders, of Summit, widow receives a bequest of $20,000, personal effects and the income for life from the residuary estate. Upon the death of Mrs. Leuders, the principal will be divided among a daughter, Mrs. Clothilde Paulson, and two sons, George K. Leuders and Frederick J. Leuders. The latter also receives the family home in Summit.

Made from American Lemons

by Exchange Lemon Products Company of Corona, California. Backed by the Sunkist group of 13,200 citrus growers—largest in the world. Immediate shipments from warehouse stocks in New York, Chicago, Philadelphia and St. Louis. For prices on kegs, barrels or carloads, consult any of the following distributors:

●

EAST OF THE ROCKIES

Mallinckrodt CHEMICAL WORKS
St. Louis Philadelphia
New York Chicago

J. T. BAKER CHEMICAL COMPANY
Phillipsburg
New Jersey

DODGE & OLCOTT COMPANY,
180 Varick Street,
New York City

NEW YORK QUININE & CHEMICAL WORKS
101 North 11th Street
Brooklyn, New York

SWANN CHEMICAL COMPANY, Birmingham, Alabama

THE HARSHAW CHEMICAL COMPANY, Cleveland, Ohio

PACIFIC COAST SERVED BY
Products Department - CALIFORNIA FRUIT GROWERS EXCHANGE, Ontario, California

New Drug Act

(*Continued from page 552*)

and 22, of this act of regulations thereunder, shall be guilty of a misdemeanor, and shall on conviction thereof be subject to imprisonment for not more than one year, or a fine of not less than $1,000 nor more than $5,000, or both such imprisonment and fine.

Liability of Corporate Officers

Sec. 18. (a) When construing and enforcing the provisions of this act, the act, omission, or failure of any officer, employe, or agent acting for or employed, by any person, within the scope of his employment or office, shall in every case be deemed to be the act, omission, or failure of such person, as well as that of the officer, employee, or agent.

(b) Whenever a corporation or association violates any of the provisions of this act, such violation shall also be deemed to be a violation of the individual directors, officers, or agents of such corporation or association who authorized, ordered, or did any of the acts constituting, in whole or in part, such violation.

Injunction Proceedings

Sec. 19. (a) The repetitious introduction into interstate commerce of any adulterated or misbranded food, drug, or cosmetic, or the repetitious dissemination by radio broadcast, or United States mail, or in interstate commerce of false advertising of any food, drug, or cosmetic, or any person, is hereby declared to be a public nuisance. In order to avoid multiplicity of criminal proceedings with respect to such person or libel for condemnation proceedings with respect to the food, drug, or cosmetic, the District Courts of the United States are hereby vested with jurisdiction to restrain by injunction, temporary or permanent, any person from continuing any such nusiance. In such injunction proceedings it shall not be necessary to show on the part of such person an intent to continue such nuisance.

(b) Violation of any such injunction may be summarily tried and punished by the court as a contempt. Such contempt proceedings may be instituted by order of the court or by the filing of an information by the United States Attorney; and process of the court for the arrest of the violator may be served at any place in the United States or subject to its jurisdiction.

Imports

Sec. 20. (a) The Secretary of the Treasury shall deliver to the Secretary of Agriculture upon his request, from time to time, samples of food, drugs, and cosmetics which are being imported or offered for import into the United States, giving notice thereof to the owner or consignee who may appear before the Secretary of Agriculture and have the right to introduce testimony. If it appears from the examination of such samples or otherwise that (1) any false advertisement of such food, drug, or cosmetic has been disseminated in the United States within three months prior to the date such article is offered for import, or (2) such article has been manufactured, processed, or packed under unsanitary conditions, or (3) such article is adulterated or misbranded within the meaning of this act—then such article shall be refused admission.

(b) The Secretary of the Treasury shall refuse delivery to the consignee and shall cause the destruction of any such article refused admission, unless such article is exported by the consignee within three months from the date of notice of such refusal, under such regulations as the Secretary of the Treasury may prescribe: Provided, that the Secretary of the Treasury may deliver to the consignee any such article pending examination and decision in the matter on execution of a bond as liquidated damages for the amount of the full invoice value thereof together with the duty thereon, and on refusal to return such article or any part thereof for any cause to the custody of the Secretary of the Treasury when demanded for the purpose of excluding it from the country or for any other purpose said consignee shall forfeit the full amount of the bond as liquidated damages.

(c) All charges for storage, cartage, and labor on any article which is refused admission or delivery shall be paid by the owner or consignee and in default of such payment shall constitute a lien against any future importations made by such owner or consignee.

Publicity

Sec. 21. The Secretary shall cause to be published periodically a report summarizing all judgments, decrees, and orders which have been rendered, and all proceedings instituted and seizures made, including the nature of the charge and the disposition thereof. The Secretary shall cause to be disseminated such information regarding any food, drug, or cosmetic as he deems necessary in the interests of public health and for the protection of the consumer against fraud.

Voluntary Inspection Service

Sec. 22. The Secretary, upon application of any manufacturer or packer of any food, drug, or cosmetic sold in interstate commerce, may at his discretion, designate supervisory inspectors to examine and inspect all premises, equipment, methods, materials, containers, and labels used by such applicant in the production of food, drugs, or cosmetics. If upon such examination the food, drug, or cosmetic is found to conform to the requirements of this act, the applicant may be authorized in accordance with regulations prescribed by the Secretary, to mark the food, drug, or cosmetic so as to indicate such conformity and such other facts relating to the identity or quality of the food, drug, or cosmetic as the regulations may provide. Services to any applicant under this section shall be rendered only upon the payment of fees to be fixed by regulations of the Secretary in such amount as to cover the cost of the supervisory inspection and examination, together with the reasonable costs of administration (including costs of establishing under section 11 additional definitions and standards for the purposes of this section) incurred by the Secretary in carrying out this section. Receipts from such fees shall be covered into the Treasury and shall be available to the Secretary for expenditures incurred in carrying out this section.

General Administrative Provisions

Sec. 23. (a) The Secretary of Agriculture is authorized to prescribe such regulations as he may deem necessary for the efficient enforcement of the functions vested in him by the provisions of this act (other than the provisions of section 20), including regulations with the force and effect of law as to notice and conduct of hearings by the Secretary. The Secretary of the Treasury and the Secretary of Agriculture shall jointly prescribe such regulations as they may deem necessary for the efficient enforcement of the provisions of section 20. Regulations prescribed under this act shall be promulgated in such manner and take effect at such time as the Secretary of Agriculture (and, in appropriate cases, the Secretary of the Treasury) shall determine.

(b) For the efficient administration of the provisions of this act, the provisions, including penalties, of sections 9 and 10 of the Federal Trade Commission Act, approved September 26, 1914 (U. S. C., title 49, secs. 49 and 50) are made applicable to the jurisdiction, powers, and duties of the Secretary under this act and to any person subject to the provisions of this act, whether or not a corporation.

(c) Hearings authorized or required by this act shall be conducted by the Secretary or such officer or employee as he may designate for the purpose. The findings of fact by the Secretary shall be conclusive if in accordance with law.

Liability for Personal Injuries

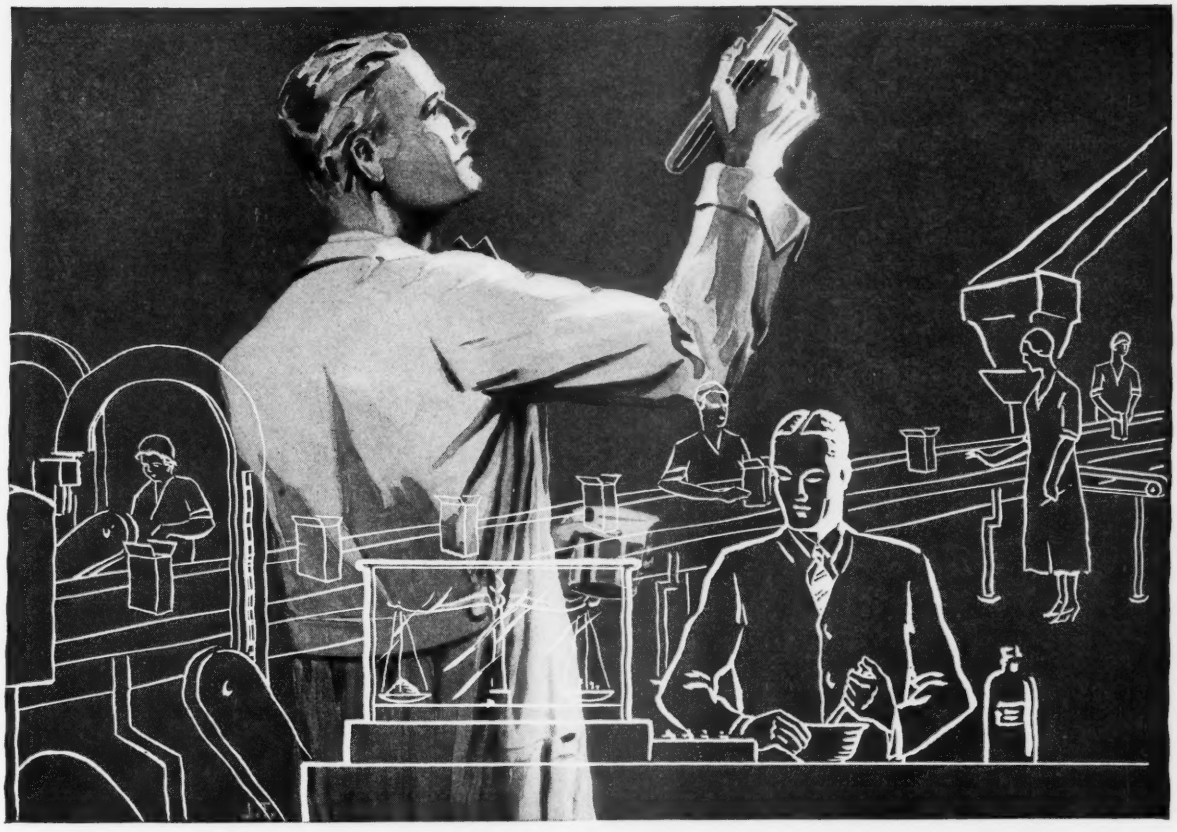
Sec. 24. A right of action for damages shall accrue to any person for injury or death proximately caused by a violation of this act.

Separability Clause

Sec. 25. If any provision of this act is declared unconstitutional, or the applicability thereof to any person or circumstance is held invalid, the constitutionality of the remainder of the act and the applicability thereof to other persons and circumstances shall not be affected thereby.

Effective Date

Sec. 26. (a) This act shall take effect six months after the date of approval.



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C. P. CHEMICALS AND ACIDS

Raw Material Markets

Chemicals **Essential Oils** **Natural Products**
Drugs **Medicinal Oils** **Flavors**

Iodine Higher on Exchange

Several advances during the past month featured the market for iodine preparations. Resublimed is quoted at $3.00 per pound, being an advance from previous level of $2.65. Tincture is now quoted in barrels at $3.25 advancing from $2.55 per gallon. Potassium iodide also advanced 20c per pound, now being quoted at $2.35 per pound. Domestic producers have also advanced sodium iodide and now quote $3.10 per pound in 25 pound quantities and in a smaller way $3.15. Quotations on this item are on the basis of prompt shipment only. No contracts are being offered at the present schedule.

The increase in these commodities was based on the higher cost of crude iodine for replacement.

Crude iodine is now quoted in sterling on the basis of 25 shillings per kilo. Based on exchange at 4.16 (June 13 quotation) this item would work out to a basis of about $2.36 per pound.

Imports of crude iodine in 1932 amounted to 631,669 pounds, valued at $2,225,661, an increase of 127 per cent. in quantity and 123 per cent. in value, compared with 1931.

The first three months of 1933, however, showed a very sharp drop in the amount of iodine imported, totaling only 500 pounds valued at $1,046, which came from Japan, none being received from Chile. In the corresponding period of 1932 crude iodine imports aggregated 72,700 pounds valued at $241,700.

Citric Acid More Active

Arrival of more seasonable weather brought out increased interest in citric acid. Sales volume mounted and gave a firm undertone to the market throughout the past month. Prices were unchanged but well maintained in all quarters.

Ergot Imports Steady

Ergot entered the United States from Spain in relatively steady amounts in the first three months of 1933, receipts from that country aggregating 31,700 pounds valued at $6,600, while Germany supplied 17,000 pounds worth $3,800. According to a report from Consul Renwick S. McNiece, Vigo, Spain, dated April 1, 1933, local traders were claiming stocks in the hands of Spanish exporters to be low. No reliable forecast could be made of the next crop owing to the uncertainty of the demand which largely governs output. About 20 tons of Spanish ergot were shipped to Germany in 1932.

Price Changes

The weighted index of prices for 50 commodities rose in June to 58.8, from 56.6 in the previous month another new high for the year. As the value of the dollar in international trade did not change as radically in this month as in the past month, prices for imported materials rose by smaller amounts. In addition, domestic prices increased slightly, with real inflation not yet in evidence.

Medicinal chemicals showed an increase to 64.0, from 61.9 in May, also a new high for 1933. There were no declines in price, while barbital, cod liver oil, mercury, quinine sulfate and iodine were quoted higher. Quotations for iodine were shifted to a basis of British shillings per kilogram, making American prices dependent upon foreign exchange rates.

The index of prices for botanicals rose 0.2 to 69.8, highest for the year. While no prices were lowered, balsam tolu, digitalis and orris prices were higher.

Essential oil prices rose from 41.1 to 41.6 in June, the third successive rise to the year's high. Anise, cassia, cloves and peppermint were marked upwards. No prices were lowered. Less important essential oils (and botanicals), not included in the indexes, registered price increases in June, the indexed commodities leading the way in the previous month.

Nine items in the index of cosmetic raw materials increased in price, bringing the index up to 63.1 from 60.1 in the previous month. The items were gum arabic, the three balsams, ceresin, rice starch, spermaceti, talc and tragacanth.

Quinine Salts Move Higher

Quinine sulfate and bisulfate advanced in late trading 1½c per oz. and are now quoted at 37½c per oz. in 100 oz. tins. In one oz. tins 100 oz. lots the price was 47½c.

During the first quarter of 1933 the United States imported 701,543 ounces of quinine sulfate valued at $242,551, compared with 183,224 ounces worth $61,986 in the similar 1932 period. Imports of other quinine and alkaloids and salts of cinchona bark also were relatively heavier, amounting to 502,700 ounces valued at $213,482 in the current quarter contrasted with 101,312 ounces worth $25,063 in the similar period of 1932.

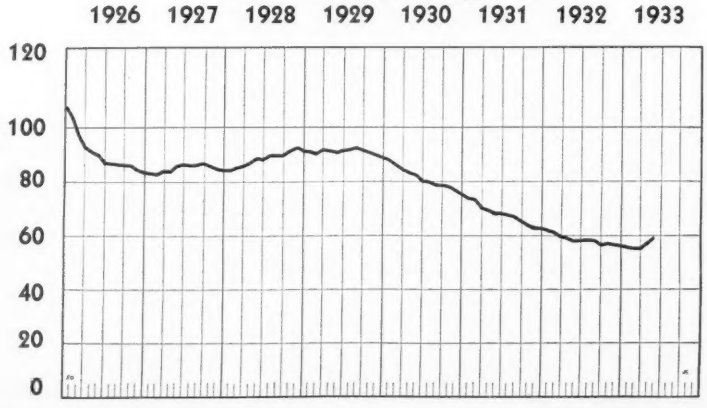
Mercury Supply Short

With no increase in domestic production of mercury, foreign metal continued to dominate the spot market with resulting increase in prices. Quotations here ranged from $60.00 to $61.50 per flask. With a good demand reported this commodity continues in short supply. There are, however, ample supplies of mercury in Europe but sellers have been unable to locate any sizable quantities on the coast.

Mercurials Point Higher

Underlying strength was the feature of the mercurials market. Although the demand is not more than routine, higher costs of quicksilver have resulted in a firmer feeling throughout the market and those closely associated with the trade feel that higher prices will be announced in not a great while.

50 Raw Materials—Weighted Index
1925 Average Prices Equal 100



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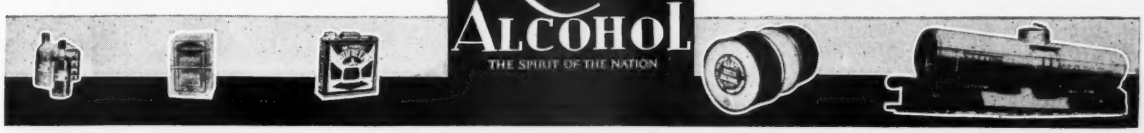


Cod Liver Oil Very Strong

Although no unusual buying movement is noted here for cod liver oil, local importers have been forced by the current high level of replacement costs to further advance spot prices. Quotations ranged from $24,00 to $25.00 per barrel according to quantity and brand offered. Underproduction in the producing countries also contributed much to the strength in this commodity.

As a result of the relatively lower yield of the cod fisheries, states Consul Alexander P. Cruger, Bergen, the production of cod liver oil was less in the first quarter of 1933 than that of last year. The production of steamed medicinal cod liver oil during the current period amounted to 55,851 hectoliters (one hectoliter equals 26.4 gallons) compared with 65,548 hectoliters in the corresponding period of 1932. The price of this oil dropped from 76 crowns per barrel quoted in December 1932 to 54 crowns in the beginning of March. Only a few sales were made during the first two months of the year, as buyers were awaiting more detailed reports from the fishing centers as to quantity, size and fat content of the liver, which factors determine the prices. As only smaller yields were obtained toward the end of March, prices increased to 69 crowns per barrel for steamed medicinal oil.

Official quotations on Norwegian cod liver oil, as issued by the Director of Fisheries, Bergen, were 73 kroner per barrel on April 4. Production of steamed medicinal oil during the current season amounted to 1,713,400 gallons up to April 15, 1933.

Wider recognition of the value of vitamins in diet and health has increased notably in recent years the sale of cod liver oil preparations in Germany.

Terpin Hydrate Advances

Terpin hydrate is higher on spot in keeping with the raw material prices which increased cost of production. From 33c to 35c per pound is quoted. Demand continued moderate but up to volume established by recent trading.

Sodium Cacodylate Up Sharply

Sodium cacodylate advanced rather sharply to basis of $5.00 to $5.25 per pound indicating marked strength in the replacement situation. Demand has been good and competition practically eliminated.

Thymol Moves Up

Thymol crystals advanced in the spot market being held at from $1.35 to $1.50 per pound. Because of the exchange situation the undertone of the market is quite firm at current prices.

Menthol Competitive

During the past month menthol has been subject to some competition both on spot and in the primary market. This local bidding for business has kept prices to the basis of from $3.00 to $3.20 as to quantity. In Japan there has also been a tendency to bid with the result that prices for shipment declined about 10c per pound.

This development in Japan was rather surprising in view of the strong statistical position of the item and the tendency of exchange to advance against the dollar. It can only be explained by the desire of the several holders to convert stocks into ready cash.

One leading importer characterized the situation as "not as yet being effected by the speculative bug but likely to feel the influence sooner or later and advance in line with the general tendency of commodity prices."

Demand has not been particularly active but local dealers are not well supplied it being said that business aggregating 50 cases would about exhaust supplies within a radius of 25 miles of New York. Importations during the past month have also been small.

Glycerin Market Steady

The glycerin market held quite firm throughout the recent trading period. Prompt delivery business was good and in view of the current strength in crude material, refiners took a firm view of the market. Competition by foreign producers has also been eliminated to a great extent by the increased cost to import. Spot price continued at 10½c per pound for C. P. quality.

During 1932 the United States imported 2,066,818 pounds of crude glycerin as compared with 1,702,064 pounds in 1931. Distilled glycerin imports in 1932 amounted only to 640,332 pounds as compared with 2,518,544 pounds in 1931.

Alcohol Firm

Alcohol prices for the third quarter of 1933 have been officially announced by the distillers and are basically unchanged from previous levels, except that price for completely denatured alcohol number 5 is quoted for spot delivery only, the schedule for the anti-freeze trade not as yet being announced.

Demand for alcohol pursued the quiet course characteristic of the season.

Quotations for denatured alcohol to be delivered during the period July 1, to September 30, 1933 are as follows:

	Carloads drums	*Single drum price*
No. 1 spec.	.335	.415
*No. 5 comp.	.385	.465
23 A. spec.	.37	.49
39 B. spec.	.38	.50
40 M. spec.	.34	.46

*so marked indicates for spot delivery only. Prices quoted are f.o.b. works.

Barbital Very Firm

The market for barbital was very firm at the recent advance spot prices being noted at from $3.75 to $3.85 per pound.

Cream of Tartar Firm

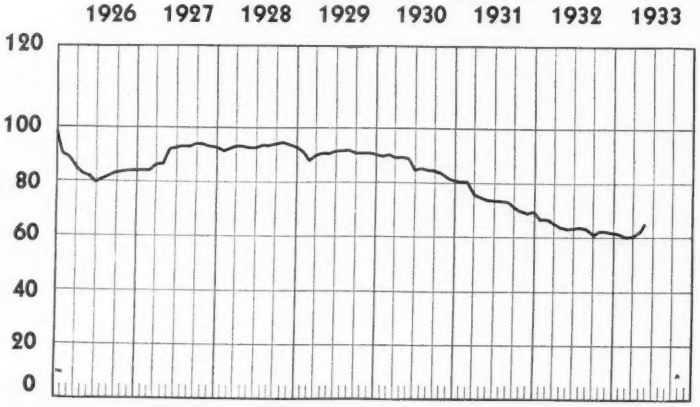
Cream of tartar was firm on spot as recent advances in cost to import goods made it more difficult for foreign competition. Domestic producers were fairly busy and received most of the business current during the past few weeks. Prices remained unchanged for domestic material.

Drug Detentions

During the past month the following material was detained by The Food and Drug Administration at the Port of New York as being in violation of act governing product in question:

Gum Benzoin	67 cases	Celery seed	70 bales
Hops	86 bales	Coriander	100 bales
Hops	310 pkgs.	Cumin seed	144 bags
Mace	89 cases	Poppy seed	630 bags
Ainseed	25 bags	Fennel seed	43 bags
Caraway seed	3096 bags	Stromonium leaves	5 bales
Cabidilla seed	41 bags	Nutmegs	220 bags

15 Medicinal Chemicals—Weighted Index
1925 Average Prices Equal 100



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Arabic Strengthens

Spot prices for gum arabic, amber sorts, was fractionally higher during the past month, being influenced principally by the firm cables from the Sudan. Importers were inclined to hold out for a minimum of 7c per pound with the range to 7¼c. Number 1 white gum was 1c per pound higher at from 15c to 16c and powdered amber sorts 11c to 14c. Other grades were firm but unchanged.

The situation in the primary market as regards deliveries at the source were opposed to accumulation of excess supplies, but sufficient material is available to meet consuming requirements.

During the four year period 1928-31 Nigeria exported gum arabic in consistently increasing quantities, most of which was destined to the United Kingdom. Shipments were recorded in pounds as follows: 1928, 81,200; 1929, 125,800; 1930, 285,600; 1931, 613,200.

Camphor Advances

The spot camphor market advanced, being lead by the sharp rise in ½ oz. tablets. Stocks of tablets are poorly distributed throughout the trade. In fact supplies are so limited that from 55c to 56c per pound is practically a nominal quotation. It is said that stocks on the way to arrive shortly are already sold and it will therefore be some time before additional supplies sufficient to ease the situation can be obtained.

Japanese refined slabs and refined powder also advanced 1c per pound being offered at from 43c to 44c and from 44c to 45c per pound respectively.

The general position is supported by a higher replacement market so that those associated with the market feel the higher prices will be maintained.

Imports of synthetic camphor into the United States during the first quarter of 1933, all of which was from Germany, aggregated only 65,974 pounds valued at $16,625, as compared with 500,209 pounds worth $135,519 in the corresponding period of 1932. Receipts of natural crude camphor (from Japan) totaled 460,052 pounds, worth $86,260, in the current quarter against 609,786 pounds, worth $186,180, in the 1932 period, while imports of natural refined camphor totaled 305,085 pounds, valued at $100,437, contrasted with 531,291 pounds, worth $201,242, in the above respective periods.

Japan Wax Competitive

Some competition was still noted in the market for Japan wax tending to keep price for this material depressed, and out of line with the replacement market. Demand was irregular and quotations continued unchanged at from 6½c to 8c per pound.

Beeswax Holds Firm

The spot market for beeswax held firm to strong in undertone during the past month. White ranged from 30c to 34c per pound and yellow refined from 21c to 24c. Yellow crude was fractionally higher with the inside price at 16c and range to 20c per pound.

The United States imported 765,000 pounds of crude beeswax valued at $100,000 in the first quarter of 1933 in contrast with 967,000 pounds and $142,400 in the first quarter of 1932. During the current period Cuba was the leading supplier with 183,600 pounds, $22,400, followed respectively by Portugal, 107,000 pounds, $12,600; Egypt 101,700 pounds, $14,500, and Brazil 90,600 pounds, $10,300.

Candelilla Firmer

Although no open change in quotations for candelilla wax was noted during the past month, the market is in a quite firm position. Stocks in some quarters have been depleted to such an extent by recent purchases for consumption that these dealers had to obtain supplies from competitors. Prices still ranged from 9½c to 11c per pound.

Sandarac Holds Price

Sandarac gum was also in a firm position on spot but without open price change. Prices ranged from 23c to 24c per pound the strength in undertone being attributed to the fact that should replacements become necessary the cost would be higher. Demand failed to give the needed support to raise prices.

Montan Wax Demand Heavy

The demand for montan wax on spot reached large proportions during the past month. In view of this and the higher cost of replacement the market advanced to from 6c to 7c per pound for crude and from 26c to 30c per pound for bleached.

French Talc Up on Exchange

Higher cost to import due to the exchange situation resulted in an advance of $5.00 per ton in the price of French talc. From $45.00 to $50.00 is now generally quoted. Other grades of talc have been proportionally strengthened by this development.

Gum Benzoin Stronger

Gum benzoin replacement costs are firmer owing to the exchange situation on the primary market. Spot Sumatra prices are therefore firmly maintained and as stocks are not large there is freedom from competition. In fact leading importers during the past month would not quote below 20c as a minimum.

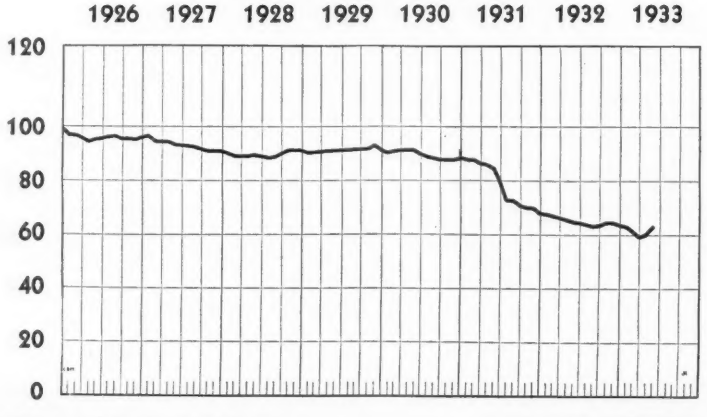
Tonka Beans Up Sharply

Angostura tonka beans advanced very sharply in the spot market during the past month. Quotations now range from $2.25 to $2.50 per pound. Undertones are firm after the advance as there is an insufficient spot supply and very small primary market holdings. Demand continued about normal for this item which does not sell in any important volume in this trade.

Papain Imports Lower

Papain imports into the United States which have declined rather consistently in recent years continued to be reduced in the first quarter of 1933, amounting to 11,500 pounds worth $9,800 against 12,300 pounds, $13,400, in the similar period of 1932. Ceylon is believed to have been the exclusive origin of the shipments mentioned although considerable quantities were received via Great Britain. Imports of papain during the calendar year 1932 amounted to 54,500 pounds valued at $50,600 compared with 65,275 pounds valued at $21,481 in 1931.

25 Cosmetic Raw Materials—Unweighted Index
1925 Average Prices Equal 100



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Orange Oil More Active

A seasonable increase is noted in the market for orange oil but competition is still a factor and tended to keep prices from rising in line with the general trend of the essential oil market. The competition offered by sellers of African oil, which is becoming an increasingly important factor, and domestic oil made difficult the sale of the Italian and West Indian products.

Prices on spot therefore remained unchanged.

According to the Bulletin Mensuel de l'Agence Economique, Paris, exports from French Guinea, West Africa, of "Essence a parfums," believed to consist principally if not entirely of orange oil, amounted to 170,000 pounds valued at $30,400, during the calendar year 1932 compared with 75,000 pounds worth $19,100 in 1931. France was indicated as the destination of the above shipments excepting about 4,000 pounds shipped elsewhere during 1932.

It is said that the price of this African oil was purposely kept low by producers in order to discourage production. The price on spot was 80c per pound in drums and 90c per pound for lesser quantities.

The table presented below, based on official United States import statistics, reveals several noteworthy trends in orange oil imports during the last three years. Total importations were steadily diminished, the valuation falling precipitously in 1932; receipts from Italy declined throughout; quantities from Jamaica increased consistently; imports from France gained each year, the drop in value of its 1932 supplies being especially marked (attributable partly, no doubt, to low-priced French Colonial oil entering in greater volume through France); receipts from Spain became negligible.

	1930		1931	
	Pounds	Value	Pounds	Value
Italy	111,357	$262,870	73,825	$153,025
Jamaica	29,547	50,087	44,809	51,600
France	1,030	3,579	4,687	7,324
Spain	17,264	27,745	4,930	3,612
Other countries	7,087	18,146	3,586	14,633
Total	166,285	362,427	131,837	230,194

	1932	
	Pounds	Value
Italy	43,713	$58,674
Jamaica	46,965	36,728
France	18,494	13,064
Spain	774	509
Other countries	4,036	3,203
Total	113,982	112,178

Rosewood Oil Production

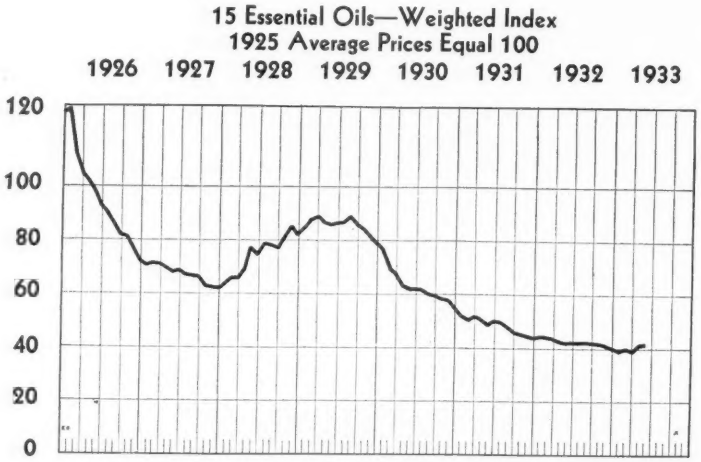
The production of rosewood oil in French Guiena was reported in 1932 on the part of only three distillers who were operating on a small scale. This represented a considerable reduction in the industry as there were between 40 and 50 distillers operating between 1927 and 1929. The decline is further evidenced in statistics indicating exports of rosewood oil from French Guiana which were as follows: 1929, 187,220 pounds; 1930, 110,000 pounds; and 1931, 75,460 pounds. The United States, a leading market for this oil formerly received the bulk of its imports originating in French Guiana through France but up to 1931 had been increasing direct purchases, taking about 65 per cent of French Guiana's 1931 shipments.

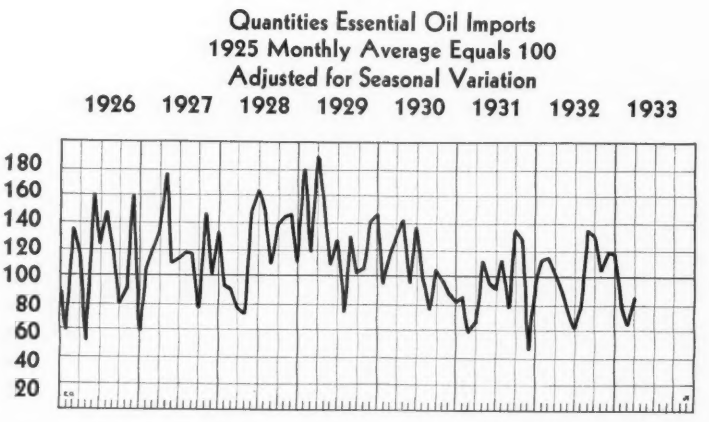
Imports from French Guiana declined, however, from 50,675 pounds valued at $52,349 in 1931 to 9,939 pounds worth $9,948 in 1932, while total rosewood oil receipts gained from 111,200 pounds valued at $84,300 in 1931 to 125,500 pounds worth $109,300 in 1932.

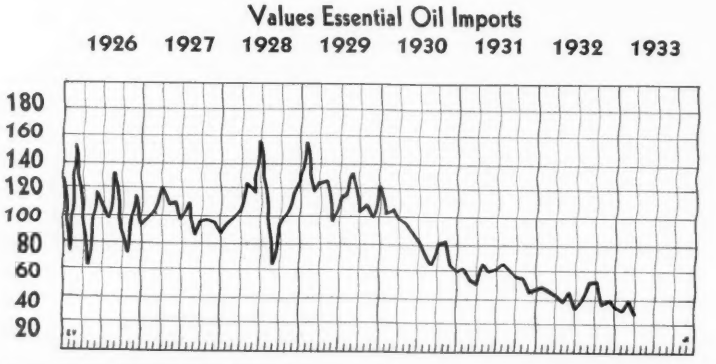
An interesting development was an increase in the imports from Surinam (Dutch Guiana) from 2,500 pounds, $2,200, in 1931, to 51,300 pounds, $54,900 in 1932. Last year Brazil supplied 26,400 pounds, $15,000 and France 28,700 pounds, $22,100.

Arnica Flowers Firmer

The exchange situation has tended to raise the import cost of arnica flowers. Local factors have therefore added the increased replacement cost to spot quotations with the result that offerings are slightly higher on the basis of from 10½c to 11½c per pound. Spot business was moderate.







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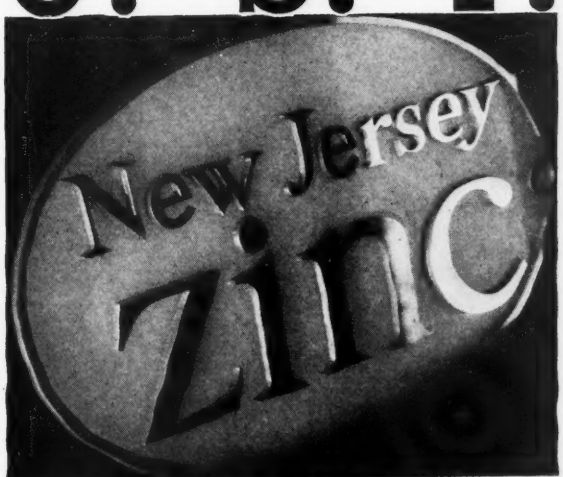

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Pyrethrum More Active

Trading in pyrethrum flowers is fairly active. Both spot and forward deliveries are in demand and owing to the upward tendency of the primary markets, especially the Japanese, many importers are holding out for better prices. There has not, however, been any open price changes as yet.

Imports of pyrethrum flowers into the United States during the first quarter of 1933 were about one-third less than in the corresponding period of 1932, amounting to 2,133,674 pounds valued at $233,800 against 3,358,800 worth $369,500 in the 1932 period. Receipts from Japan amounted to 1,881,300 pounds, $211,300, in the current quarter compared with 2,976,700 pounds, $332,200 in the first quarter of 1932. Imports of pyrethrum from Yugoslavia totaled 172,000 pounds, $15,600, against 183,400 pounds, $20,000 in the above respective periods, while receipts from Italy totaled 64,200 pounds, $6,200 contrasted with 192,700 pounds, $17,400 respectively.

Japan's 1933 pyrethrum crop will amount to about 15,000,000 pounds, according to unofficial trade estimates. Growers have contracted with merchants and exporters for approximately 20 per cent of the crop. These contracts were formed on the basis of advances of money by the merchants and exporters to the growers.

The Pyrethrum Association, which was formed in Hokkaido in the fall of 1932, does not engage in the sale of pyrethrum flowers. The object of the Association is to regulate production and to fix market prices insofar as possible. While the Association is composed largely of growers, some of the members are also exporters. (Department of Commerce).

Tragacanth Higher

An active spot demand for gum tragacanth has removed most of the lower priced material so that prices have been raised to meet the increased costs of importations. Number 1 gum is now selling for from 70c to 75c per pound, number 2 from 58c to 60c and number 3 from 50c to 52c. Powdered gum ranged from 55c to 65c per pound, Turkish continuing unchanged at from 40c to 60c with a firm undertone.

Buyers for consumption seemed anxious to cover requirements for the months ahead. Inquiry for contracts over a period of from six months to a year were noted with importers for the most part declining to write in protection clauses.

Eletris Root Firm

Eletris root is very firm at from 16c to 18c per pound. Demand is good and there is uncertainty concerning probable collection this year.

Ipecac Root Neglected

Ipecac root is neglected. Offerings of Nicaraguan root are made at from 60c to 65c per pound, but comparatively little interest is shown in the article.

Cumin Still Higher

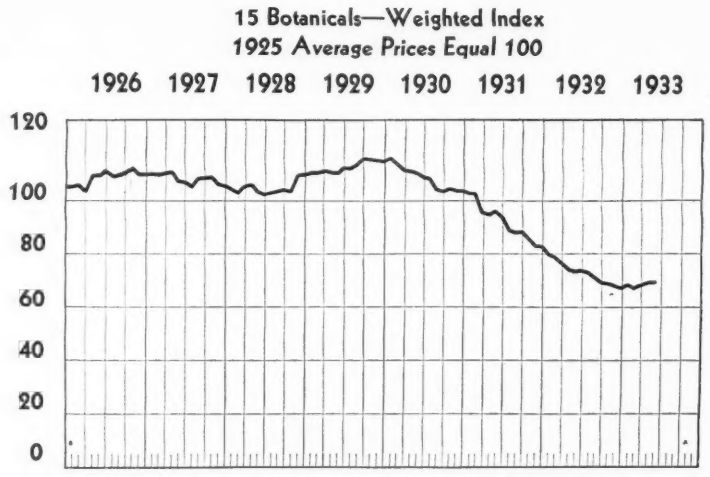
Higher exchange forced a further advance in cumin seed. Morocco is now on the basis of from 9½c to 10c per pound and tending upward in view of the absence of normal stocks here. Competition in this item has been totally eliminated.

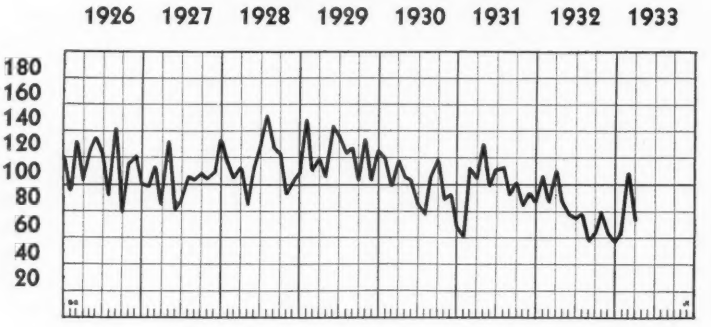
Cloves Move Up Again

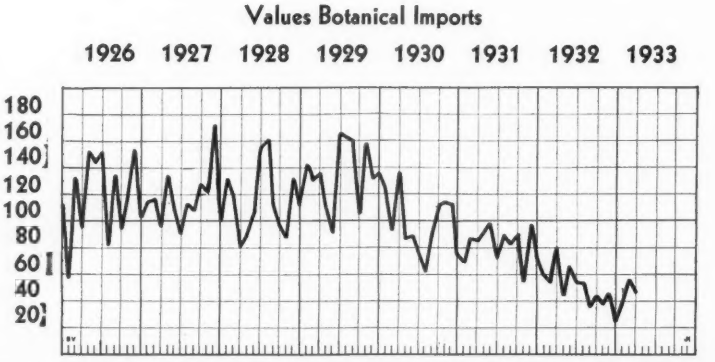
The market for cloves advanced further reaching a basis of from 10½c to 11c per pound. Stocks on spot are small and the primary market exchange advanced during the previous trading period. Demand is moderate.

Rhubarb Strengthens

Offerings of rhubarb from the primary market were infrequent and at the source the price tendency was upward. Spot high dried sold at from 19c to 20c per pound and powdered at from 23c to 24c.







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Psyllium Seed Easy

Spot stocks of psyllium seed seem to be more than sufficient to meet requirements. Although most of the botanicals show advances over the past two months the general trend has not affected this commodity. In fact the spot market is said to be below the present cost of replacement. From 10c to 12c per pound is generally quoted for black seed with the blond variety offered at from 5c to 7c.

Imports of psyllium seed into the United States during the first quarter of 1933 continued to expand, being about 10 per cent greater in volume than in the corresponding period of 1932. The aggregate value of the 1933 receipts were lower by more than 50 per cent.

The French seed had an import value per pound of about $0.06 in the current quarter as contrasted with $0.17 in the 1932 period. Indian shippers, apparently, received about $0.03 per pound from American importers in the first quarter of 1933, as compared with $0.06 in the similar period of 1932. United States psyllium imports were as follows:

	1st quarter 1932		*1st quarter 1933*	
	Pounds	*Value*	*Pounds*	*Value*
France	750,000	$128,000	1,064,000	$68,800
India	464,800	28,000	493,800	12,000
Other Countries	267,300	31,600	66,094	4,000
Total	1,482,200	187,600	1,623,894	84,800

Chamomile Flowers Up

The upward cost of replacements is directly related to the higher spot market for Hungarian chamomile flowers. Some dealers are asking as much as 16c per pound with the range to 17c in a small way. It is said, however, that a fair sized order could be placed at 15c. Good quality flowers are scarce but demand has more or less been restricted to small quantities. Roman flowers are noted at from 35c to 45c per pound.

Lavender Flowers Higher

Higher import costs brought a very firm undertone to the market for lavender flowers. Ordinary goods were priced according to quality at from 16c to 20c per pound. Select sold at from 30c to 32c. Demand improved during the past month adding to the firmness of undertones.

Digitalis Up on Small Stocks

Spot stocks of digitalis were reported as very small. The market therefore advanced to from 27c to 29c per pound as to quantity and any attempt to purchase below these figures found sellers taking a reserved position.

Cassias Strengthen

Exchange having advanced again spot quotations for cassia were raised. Batavia No. 1 sold at from 9c to 9¼c per pound and shortstick at from 8c to 8½c. China cassia was firmer but unchanged in price.

Borax Figures

The last reported production of borax in Chile was in 1928, according to a report from Santiago to the Department of Commerce, after which the principal mine closed. The former importance of the industry is reflected in the annual output of the period 1925-1928 shown by the following data (metric tons): 1925—39,662; 1926—34,668; 1927—20,300; 1928—18,934.

There is some local production of boric acid by several firms who supply considerable of the domestic requirements. However, the quantities imported in 1931 and 1932 totaling respectively 9 and 8.7 metric tons of boric acid and 28.8 and 57 metric tons of borax seem large enough to constitute the bulk of local consumption. The imports in the years mentioned were mostly from the United States and Germany.

Japanese borax and boric acid imports increased in 1932 in comparison with preceding years as shown by the following data:

	Borax *Metric tons*	*Boric Acid* *Metric tons*
1929	4,358	1,146
1930	3,618	816
1931	6,900	925
1932	8,895	997

Boric acid production is reported to be increasing in Japan, presumably from imported boron minerals, since there are no known deposits of the latter in Japan.

Balsams Higher on Spot

Balsams advanced on spot during the past month. Para is now quoted 23c to 24c per pound with South American reaching 25c to 26c. Spot stocks are scarce and few offerings were received from the primary market. Local factors do not appear willing to accept large orders. Peru was noted at 95c and Tolu at 78c.

Vanilla Beans Steady

The vanilla bean market is about steady although lacking in normal consumer request. Competition is still a factor but in view of higher exchange rates no price shading is noted. Stocks are still in supply, especially as regard the Bourbons. Owing to the wide spread between the Mexican and Bourbon beans the former is very quiet.

Celery Seed Up Sharply

Celery seed advanced severely on spot now being offered at from 45c to 50c per pound as to seller and quantity. This is a high price for many years. Primary market shippers were very reserved as stocks were said to be negligible. Exchange and the retention of many shipments by the Department of Agriculture tended to further strengthen this item.

Carnauba Up Sharply

The feature of the wax market was the sharp advance in Carnauba. Number 1 wax sold for from 28c to 29c per pound. Demand was exceptionally good for spot and future requirements as buyers sought protection against possible further advances. The strength of the market rested, however, on higher asking prices for shipment and the difficulty in finding substantial quantities of material in the primary market.

One leading import factor was of the opinion that the volume of business done was substantially greater than actual consuming requirements would warrant and that stocks were being accumulated in consumers hands as a speculation and not by any means going directly into finished products.

Approximately 1,500,000 pounds of carnauba wax valued at $178,000 were imported into the United States from Brazil in the first three months of 1933, about 400,000 pounds and $61,000 less than receipts in the similar 1932 period.

Carnauba wax is an exclusively Brazilian product. It originates as a fine powder which is dislodged from the leaves and sprouts of the carnauba palm. Dry weather is a requisite to satisfactory yields, hence the leaves and sprouts are generally cut preparatory to extracting the wax from September to February or March. Large areas of carnauba palm tracts in Brazil remain unexploited.

Hop Supply Cleaned Out

Very heavy selling of hops has practically cleared out all available supplies of this material on spot. Prices therefore advanced sharply to the basis of from 69c to 74c as to seller. These prices are said to be practically nominal as few dealers have any hops to offer.

Lobelia Firmer on Demand

Lobelia was in small supply and an increased demand took additional stocks out of the market. The market was therefore quite firm at prevailing levels but failed to advance further. The situation is said to be such that a shortage will exist for some time to come.

Cannabis Very Firm

Cannabis is very firm on spot at 16c per pound. Reports indicate collection this year will be smaller. Dealers have been placing orders for conservative quantities however, as the carryover is of fairly good size.

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Essential Oil Imports in 1933

United States essential oil importations in the first quarter of 1933 had a total value of $602,000, against $799,300 in the same 1932 period. There was an increase, however, in the poundage received of a number of oils, some of the more important of which are recorded in the following import table:

	1932 1st quarter	
	Pounds	*Value*
Cassia and cinnamon	86,000	$45,400
Geranium	46,200	131,500
Otto of rose (ounces)	2,954	21,956
Bergamot	19,600	34,300
Citronella and lemongrass	334,700	108,600
Lavender & spike lavender	56,200	70,000
	1933 1st quarter	
	Pounds	*Value*
Cassia and cinnamon	90,500	$40,100
Geranium	31,500	97,800
Otto of rose (ounces)	8,151	44,698
Bergamot	24,400	26,100
Citronella and lemongrass	354,700	121,200
Lavender & spike lavender	35,300	41,400

Spot clove oil prices were advanced sharply to basis of 85c to 90c per pound. The advance was in line with the higher cost to obtain raw material in the Far East. At the higher level the market presented a strong aspect in view of continued rise in primary market exchange. Demand broadened.

The United States took practically the entire output of the Seychelles cinnamon leaf oil production in 1931, being the destination of 50,850 kilos out of total exports of 54,793 kilos. The total of the 1931 exports of this oil represented a gain of about 10 per cent over 1930.

Patchouli oil also was exported in 1931 to the extent of 3,900 pounds compared with 2,300 pounds in the preceding year. The United States received about one-third of the 1931 shipments.

Acute shortage of raw material sent celery oil to much higher levels. Oil of the best quality was quoted as high as from $10.50 to $12.50 per pound. Spot stocks were quite low.

Cubeb prices were firm on spot. Although the movement into consumption was somewhat routine the undertones were steady in keeping with the strength that rising exchange has given the raw material in the primary market.

Exports of petitgrain oil from Paraguay rose in value to $127,603 for 1932 from $112,036 in 1931. Figures showing quantities shipped for these years are not available. However, 1930 exports amounted to 81,564 kilos valued at $204,342 and 85,938 kilos worth $246,258 in 1929.

While bergamot oil was firm for import, a comparatively inactive spot market kept prices toward the easy side. From $1.20 to $1.75 per pound were the prevailing prices according to quality and seller.

Lemongrass Advances

Spot quotations for oil lemongrass advanced sharply during the past month to the basis of from 60c to 63c per pound. The movement reflected sharply higher prices for primary market shipment due to the exchange situation and an absence of surplus stocks. Due to weather conditions in the Far East deliveries to shipment ports from the interior were greatly reduced.

Total imports of citronella and lemongrass oils into the United States in 1932 amounted to 1,508,000 pounds valued at $483,000 against 1,026,000 pounds and $386,000 in 1931. Receipts from Netherland India increased from 467,000 pounds, $201,000 in 1931, to 733,000 pounds, $275,000 in 1932, while imports from Ceylon, the second leading source expanded from 405,000 pounds, $122,500 to 545,000 pounds, $136,600, in the above years respectively. Quantities from British India gained from 100,000 pounds, $37,300 in 1931 to 183,300 pounds, $57,000 in 1932.

Cassia oil was higher on spot reflecting the higher cables from China which indicated growth of strong undertones there. Although business was on the small side competition was absent from the market here so that sellers in most instances were firm in their views at prevailing prices which ranged from $1.00 to $1.05 per pound.

The upward movement in citral has been extended with sales being reported up to $1.75 and $1.85 per pound. This was in line with the sharp advance in lemongrass. Demand continued to be restricted to small lots but the very strong raw material market created firm undertones in the citral market.

Sweet almond oil advanced to basis 52c to 58c per pound. The higher replacement market was responsible for the increase.

Prices for eucalyptus oil failed to advance further during the past month. The market was very firm, however, with prospects pointing toward higher prices as sterling exchanged advanced several times during the month. Inquiries for futures were said to be active.

The competition by domestic lemon oil kept the Italian from advancing to higher levels. Spot was steady, however, and were it not for this competition higher quotations for the Italian material would be inevitable. The market was more active.

Advance in production costs strengthened the market for mace oil materially. Spot quotations were on the basis of 95c to $1.00 per pound and aided in the position by a good demand.

Peppermint Higher Again

The spot position of peppermint oil reflected the situation at the source where considerable strength continued to be displayed, and was sensitive to further movement in values in the country. Local factors, therefore, were again forced to raise prices. The natural oil sold at from $2.50 to $2.70 per pound and the redistilled was priced at from $2.75 to $3.10. Demand did not press actively on the market, buyers being inclined to await further developments. It is yet too early to get any reports on new crop prospects. Distillation of new crop oil will begin the latter part of July.

Oil spearmint advanced further during the past month to the basis of from $1.40 to $1.60 per pound, reflecting the absence of weakness in the primary market and the general tendency of the mint oil to go forward in price. Primary market sellers showed reserve and held prices firmly.

Lime oil is in a much firmer position. Weather stimulated demand and the higher exchange on the primary market tended to raise import costs. There were, however, no open change in spot quotations.

Cedarleaf oil was quite strong on spot at from 60c to 65c per pound. There was present a fair sized demand for prompt shipment.

Exchange kept prices for geranium oil import strong but there was no changes in price other than an advance in Turkish oil to from $1.85 to $2.05 per pound. Demand here was conservative but steady thereby lending support to spot quotations.

Caraway oil was much firmer on spot as exchange tended to raise import costs. The market here, however, seemed well supplied with material bought some time ago and hence no revision in price schedules were noted. The current spot price of from $1.60 to $1.75 per pound was said to be about equal with the cost of replacement.

Sharply higher prices for raw material put eugenol in a very firm position at from $2.00 to $2.50 per pound. Market undertones were also strengthened by development of interest on the part of buyers.

Camphor sassafrasy oil was firmer on spot to the extent that primary market exchange showed an advance. The presence of some local competition, however, prevented an advance that would otherwise been likely.

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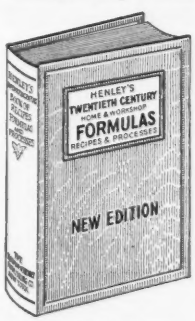

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Abstracts

Identifying Papaverine

Mixture of papaverine, zinc chloride and benzoyl chloride first colors pink when heated, then blood red color, which pales and becomes yellow to greenish yellow with greenish fluorescence. Alcoholic solution gives stronger fluorescence. Ber. Ungar. Pharm. Gesel., volume 8, number 6. L. Ekkert.

Adsorption of Alkaloids

Investigation was carried out on adsorption of certain alkaloids by mineral adsorbents. Alkaloids used included nicotine, caffeine, quinine basic hydrochloride, and mineral adsorbents were silica gel, alumina gel, iron hydroxide gel, chromium hydroxide gel. Adsorption is appreciable to ordinary temperature and depends on nature of adsorbent and of alkaloid. Phenomenon follows out Freundlich law. Hydrolytic adsorption with basic hydrochloride of quinine has not been substantiated. G. Malquori. Ann. Chim. Applicata, volume 22, pages 448 to 455.

Pepsin Wines

Loss of activity and formation of turbidity in pepsin wines was studied. Milk gelatin and egg albumen, all of which precipitates most of pepsin, cannot be used for clarification of pepsin wine. Turbidity in finished wine is caused only by contact with metals, and if metal filter has to be used then pepsin should be added afterwards. If tinned Seitz filter is used, previous addition of hydrochloric acid is not effective in diminishing subsequent turbidity. Silvered filter does not produce turbidity. W. Brandrup. Pharmazeutische Zeitung, volume 77, page 1334.

Hexylresorcinol Derivative

Effect of replacing two oxyhydriles in molecule of hexyl-resorcinol by two groups $NaSO_4$ is studied. Hexylresorcinol-sodium disulfates, which is formed in this manner, is an amorphous powder, easily soluble in water, while hexyl-resorcinol is soluble only in proportion of 1 in 2000 parts of water. Antiseptic powder of new product is about 40 times less than that of hexyl-resorcinol as far as staphlococci are concerned. Its action on surface tension of aqueous solutions is negligible. It is a very much less toxic product. When administered through mouth of rabbit, it is hydrolyzed in organism and surface tension of urine is lowered by action of hexyl-resorcinol which is liberated. Such decomposition does not take place in human system and hence surface tension of urine is not changed. K. S. Grewal Journal Pharmacology, volume 45, pages 283 to 290.

Oil from Dacrydium Cupressinum

Oil contained 20% terpenes, mostly alpha-pinene, 9.4% of tricyclic susquiterpene (boiling point 132 to 135° C. under 20 mm. pressure, density at 20° C. 0.9238 index of refraction 1.501 and angle of rotation of light (right) +17.57°). No crystalline derivative could be obtained from sesquiterpene. Oil also contained 31% of liquid diterpene fraction (boiling point 150° to 154° C. under 1 mm., density at 15° C. 0.9763, index of refraction 1.5211 at 15° C., angle of rotation of light (right) +15.17°), assumed to contain 85% of a tetracyclic diterpene and 15% of a saturated diterpene. M. S. Carrie. Journal of the Society of Chemical Industry, volume 51, pages 367 to 368T.

Pharmacology of Colloidal Gold Sulfide

Toxicity of colloidal gold sulfide appears to vary according to experience. In one case, injection of 0.033 gram per kilogram of weight of rabbit led to death in one hour. Injection of 0.5 gram is not always fatal. On other hand, a dose of 0.09 gram led to death in ten minutes. Toxicity is not of chemical nature, properly speaking, but is often due to physical, phenomenon of diffusive embolism analgous to what is observed in case of other colloids, sulfides of arsenic and antimony. When animal survives, pathological symptoms of any note are not observed, but blood formula of animal is changed. As regards sulfide of gold as in case of chloride or double hyposulfite of gold and sodium, actual active agent appears to be gold in form of cathion. Pharmacological action is variable according to speed with which this metallic cathion forms and rapidity with which it comes in contact with organs of body. G. Orestano. Bolletino Societa Italiana Biol. Sper., volume 7, 1281-3.

Impurities in Ether

Impurities in ether are due either to insufficient care in manufacture or modifications taking place during storage, caused by air and light. Hydrogen peroxide, acetaldehyde, vinyl alcohol and organic peroxides are formed. To determine quantitatively such impurities 100 cc. of 20% sulfuric acid and 5 cc. of starch solution are mixed in glass flask, 5 grams potassium bicarbonate are added in large pieces. Carbon dioxide evolves and drives air out. Then 0.5 gram potassium iodide and one gram potassium bicarbonate are added, and just before gaseous evolution ceases 5 cc. of ether to be tested. Mixture is vigorously agitated. Reaction ends after 10 minutes and solution is then titrated with hundredth normal sodium thiosulfate. Author recommends oxidation of ether expressed in degrees of oxidation. This is given by number of cc. of hundredth normal sodium thiosulfate required to decolorize iodine set free by 10 cc. of ether. Dr. Szalhender. Industrie Chimique, 1933, 61.

Vitamins in Cod Liver Oil

Cod liver oil is agitated with various solvents, as follows:—alcohol (25%) mixed with 0.5% hydrochloric acid; 60% and 90% alcohol; absolute alcohol and absolute ether; absolute alcohol. Vitamin A and D content of treated cod liver oil is determined biologically. Experiments showed that vitamin A is insoluble in hydrochloric acid and very slightly soluble in aqueous alcohol. Agitation with absolute alcohol gives two products, that is dissolved oil and oil not dissolved in alcohol, which contains principal portion of vitamin A. However it is impossible to obtain in this manner an oil containing large proportions of vitamin A. This is also true for vitamin A. M. Y. Funcke. Farmacevitsch Revy through Journal de Pharmacie et de Chimie, February 16, 1933.

Carbonate in Sodium Bicarbonate

Thymol blue method is preferred for determining sodium carbonate in sodium bicarbonate. One gram of sodium bicarbonate is dissolved in 100 cc. of boiled water and solution is cooled without agitation. Ten cc. of solution are introduced into test-tube with 0.01% phenolphthalein. Color should not be more intense than that obtained with 5 to 10 cc. of decinormal solution of sodium hydroxide, diluted with water to 100 cc. and mixed with 0.3 cc. of same solution of phenolphthalein. G. H. Hoore. Pharmaceutical Journal, 1933, volume 130, number 3606.

Activity of Mustard Powders

Revulsive activity of mustard powder is related to its content of sinigroside. This is determined by converting this compound into allyl isosulfocyanide. Minimum content is set at 7%. Most mustard flours, from which oil has been removed, contain more than 7%. But in addition to content of sinigroside, it is essential to take into account rapidity of decomposition of sinigroside by means of myrosine. Distinction must be made between strong and weak mustard powders and also between rapid and slow mustard flours. Speed if hydrolysis of sinigroside is variable according to origin of mustard seed and depends on number of factors, principally fineness of pulverized flour, the degree to which the oil is removed and the content of myrosine. Fixed oil content can be reduced by action of ferment. On other hand, presence of sodium bicarbonate or disodium phosphate increases rapidity of hydrolysis. Andre Garbit. Journal de Pharmacie et de Chimie, February 16, 1933.

Patents

UNITED STATES PATENTS

Anesthetic

Esterify 3-diethylamino-2-dimethyl-1-propanol with p-nitrobenzoyl chloride and reduce. Produce has strong anesthetic properties. Homologs and derivatives may also be prepared. C. Mannich. U. S. P. 1,889,678. Filed Oct. 3, 1930.

Nasal Therapeutic Agent

An emulsion is prepared with oil and water and a therapeutic substance such as ephedrine is dissolved in one constituent of the emulsion. A. L. Omohundro Ass. Fred. Stearn & Co. U. S. P. 1,890,860. Filed March 22, 1930.

Bismuth for Neurosyphilis

Halogen salt such as sodium iodide is made to react with bismuth salt in solution to form salt of bismuthous acid and an insoluble residue. Filter and evaporate solution and wash crystallized salt with ether. Ethyl acetate may be used as solvent. P. J. Hanzlik. Ass. Leland Stanford, Jr. University. U. S. P. 1,-890,-508. Filed Sept. 29, 1930.

Compounds of Glucosaminic Acid

React glucosaminic acid with antimony hydroxides to obtain stable soluble compounds. A. Stoll and A. Hofmann. Ass. Chem. Fabr. Sandoz. U. S. P. 1,888,186. Filed November 5, 1931.

Spinal and Lumbar Anesthetic

Cause 4-butylaminobenzoic acid to react with hydrochloride of beta-dimethylaminoethanol. O. Eisler. Ass. Winthrop Chemical Co. U. S. P. 1,889,-645. Filed June 22, 1932.

Female Sex Hormone

Extract of female sexual organs, purified by elimination of phosphatides, cholesterol and cholesterol esters and by precipitation of most of fatty acids as metal soaps, is dissolved in petroleum ether. Residues of metal soaps are salted out with neutral electrolyte such as sodium sulfate; filter and evaporate petroleum ether from filtrate. S. Fraenkel. Ass. Soc. Ind. Chim. Bale. U. S. P. 1,890,373. Filed June 7, 1928.

Heat for Permanent Waving

An exothermic material such as calcium oxide is used with moistening agent such as water and heat generation is retarded by addition of material such as sugar, ammonium sulfate or ammonium hydroxide. Or add aluminum sulfate for the promotion of heat generation, or add alcohol or ammonia to prolong heat generation. R. L. Evans. Ass. Zotos Corp. U. S. P. 1,892,389, filed Nov. 10, 1932; 1,892,390, filed Nov. 11, 1932; 1,892,391, filed Nov. 12, 1932.

GERMAN PATENTS

Therapeutic Silver Preparation

An alkali sulforicinoleate solution is treated with silver nitrate and precipitate washed and heated under pressure with ethylene diamine. Van Winkler Laboratories, Inc. G. P. 568,339. Filed May 30, 1931.

Solid Iodine Preparation

Treat solid magnesium hydroxide with vaporized iodine or solutions of iodine in inert solvent such as ether or chloroform. Presence of carbon dioxide should be avoided. Product may contain up to 30% of iodine. Assoc. Prod. Yodo de Chile. G. P. 568,156. Filed Oct. 15, 1930.

Organic Arsenic Compounds

Organic arsenic compounds containing a glycolic acid residue are treated with bismuth salts. Water insoluble bismuth salts of therapeutic value are obtained. I. G. G. P. 568,132. Filed June 12, 1931.

Dentifrices and Mouth Washes

Dentifrices and mouth washes containing potassium and sodium chlorate are improved by addition of compound which promotes oxidizing action of chlorate, e.g. vanadium salts. H. Janistyn. G. P. 568,358. Filed March 18, 1932.

Perfumes

As solvents for perfumes, use is made of aliphatic, aromatic or hydroaromatic ethers of isochavibetol, other than methyl ether. Use may also be made of products obtained by etherifying mixtures of isochavibetol and its isomers. J. D. Riedel-de Haen A. G. G. P. 568,312. Filed Sept. 8, 1926.

MISCELLANEOUS PATENTS

Pyridine Compounds

Easily soluble products for X-ray work are obtained by transforming hydroxy- or keto-halo-pyridines substituted by acid groups, into salts with aliphatic amines. Fr. P. 737,889. Filed May 31, 1932.

Mercury Barbituric Acid Salts

Dialkylmalonylurea, or its sodium or potassium salt is made to react with an alkali or alkaline earth salt of 3-hydroxymercuri-5-sulfo-2-hydroxy-benzoic acid. K. Isiwara. Ass. Sankyo K.K. Jap. P. 94,740. Filed Feb. 25, 1932.

Shaving Cream

Melted mutton tallow (250 g.) and 50 g. ox tallow are saponified with 178 cc. 50° Be. potassium hydroxide solution and boiled to sticky mass. Cool and mix with boiled solution of 150 g. stearin, 40 g. anhydrous lanolin, 50 g. potassium carbonate and 1200 g. water. Make up to 3000 g. with water. G. Horvath and I. Szigeti. Hung. P. 104,729. Filed Jan. 10, 1931.

Shaving Soap

Add refined petroleum jelly as superfatting agent in shaving soap, using an amount equal to not less than 30% of complete soap and not more than 45% of fat used. B. Hauptmann. Brit. P. 365,047. Filed Oct. 16, 1929.

Shaving Soap

Stick of shaving soap is formed with core of menthol combined with starch, wax, soap or other carrier. J. H. Morgan. Brit. P. 366,535. Filed Nov. 5, 1930.

Synthetic Drugs

Double compound of pyridine series results from action of two molecules of nicotinic acid and one molecule of calcium chloride. A solvent may be present. S. A. Ind. Chim. Bale. Swiss P. 154,815. Filed Mar. 7, 1931.

Ephedrine Drug

Therapeutically valuable product is obtained by interaction of equimolecular amounts of ephedrine and phenylallylbarbituric acid. Solvent may be present. S. A. Ind. Chim. Bale. Swiss P. 154,951. Filed Apr. 16, 1931.

Opium

Opium is treated with ammonia to precipitate morphine and narcotine. Other alkaloids are precipitated from mother liquor by precipitants such as ferric hydroxide, leaving very pure opium suitable for injection. A. G. B. Siegfried. Swiss P. 153,326. Filed Oct. 28, 1930.

Acetylquinoline Salts

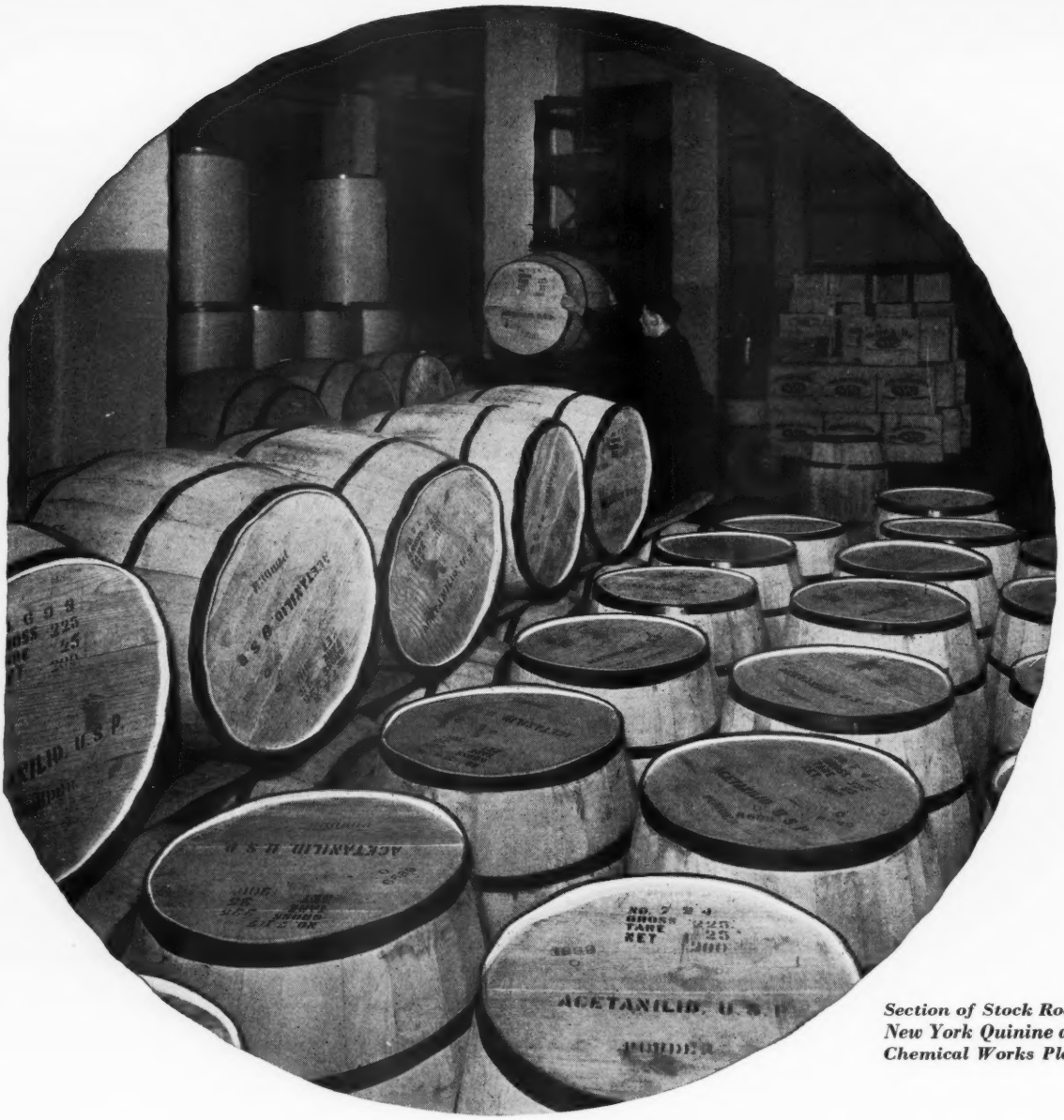
Hygroscopic salts are made up for medicinal or injection purposes by filling ampoules with solution in absolute alcohol, evaporating alcohol and sealing ampoules. F. Hoffmann-LaRoche. Swiss P. 153,032. Filed Jan. 23, 1931.

Mercury Composition

Alcoholic solution of mercuric chloride is made to react with alcoholic solution of potassium iodide and iodine. Product is filtered, dried and dissolved in water. Sodium iodide is added to produce scarlet-red suspension. M. Pacella. Can. P. 327,050.

Sterols

Sterol-containing material, such as compressed yeast is hydrolyzed by cooking under pressure with aqueous solution of compound having alkaline reaction such as carbonate of hydroxide. Cool and add small amount of solvent for sterol immiscible with solution and reflux until sterols are dissolved. Separate sterol solution and purify sterols in any suitable manner. R. F. Light and C. N. Frey. (Ass. Standard Brands, Inc.) Can. P. 328,325. Filed Dec. 6, 1932.



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Brucine Sulphate
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Codeine Alkaloid
Codeine Phosphate

Codeine Sulphate
Iodine Resublimed
Iodoform
Menthol-Y
Morphine Alkaloid

Morphine Sulphate
Opium Gum
(Gran. and Powd.)
Potassium Iodide
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The range of price given is not "bid and asked," but are prices of different sellers, based on varying grades and/or quantities. Containers named are original packages most commonly sold.

Acetanilid
Hypoquinone

Chemicals

Acetanilid, USP, 200 lb bbls..lb	.26	.27
Acetone, pure 350 lb drs wks..	.10	.11
Acetphenetidin, 225 lb bbls..lb.	1.20	1.25
ACID, Acetylsalicylic, 225 lb ....bbls.	.70	.75
Agaric, 1 oz vials.....oz	...	3.50
Arsenous, USP, 220 lb bbls lb.	...	.18
Benzoic, USP, 100 lb bbls.lb.	.48	.52
Boric, 300 lb bbls.....lb.	.07	.08
Cacodylic, 5 lb. bot.....lb.	...	8.00
Camphoric, USP, VIII 1 lb bot.....lb.	4.82	4.82
Carbolic, USP, crys 112 lb tins.....lb.	.17	.18
Cinnamic, 5 lb cans.....lb.	2.85	3.25
Citric, USP, crys 230 lb bbl lb USP, crys imp. 112 lb keg .....lb.	...	.29
USP, powd 200 lb bbl...lb.	.34	.36
Gallic, USP, 150 lb bbls..lb.	...	.31½
Glycerophosphoric, 25% 1 lb bot.....lb.	1.40	1.75
Hydriodic, USP, 10% 5 lb bot.....lb.	...	.59
Hydrobromic, USP, 40% 155 lb. cbys.....lb.	...	.55
Hypophosphorous, USP, 30% .....lb. 5 gal demis.....lb.	...	.75
Lactic, USP, VIII 100 lb cbys lb.....lb.	.48	.50
USP, X 100 lb cbys.....lb.	.50	.52
Phosphoric, USP, Syr 70 lb drs.....lb.	.14	.15
Pyrogallic, crys 5 lb cans...lb.	1.30	1.40
Resublimed, 5 lb cans...lb.	1.60	1.70
Salicylic, USP, 100 lb bbls..lb.	.40	.45
Stearic, double pressed, bags .....lb.	.08½	.09
Triple pressed, bags.....lb.	.11¼	.12½
Succinic, 100 lb bbls.....lb.	...	1.35
Sulfurous, USP, 6% 100 lb cbys.....lb.	.05	.06
Tannic, USP, fluffy 50 lb bbls. .....lb.	.80	.83
Powd 200 lb bbls.....lb.	.70	.75
Tartaric, USP, 300 lb bbls.lb	.20½	.21
Aconitine, Alk, crys 1 oz vials .....oz.	...	29.00
Amorphous, 1 oz vials....oz.	...	17.00
Agaricin, 1 oz vis incl.....oz.	...	2.32
ALCOHOL, Benzyl, 5 lb bot lb. F. O. B. Works.....	1.20	1.35
Ethyl, USP, 190 pf 54 gal drs.....gal.	...	2.535
Grain U. S. P. bbls....gal.	...	2.565
Pure tax free drums...gal. Ethyl.....	...	.445
Grain.....	...	.475
Denatured, (drums included) add 5c for bbls. No. 1 spec.....gal.	.335	.415
No. 5 comp.....gal.	.385	.465
23 a, spec.....gal.	.37	.49
39 b, spec.....gal.	.38	.50
40 m. spec .....gal.	.34	.46
Isopropyl refd 98-99% drs. incl.....gal.	.55	.60
Phenylethyl, 1 lb bot.....lb.	4.30	4.50
Aloin, USP, 100 lb cases....lb.	.72	.77
Aluminum Acetotartrate kegs .....lb.	...	1.60
Amidipyrine, 10 lb boxes....lb.	4.00	4.10
AMMONIUM, Acetate 100 lb kegs.....lb.	.26	.33
Benzoate, USP, 1 lb bot...lb.	...	1.27
Borate, 10 lb bot.....lb.	...	.35
Bromide, USP, 450 lb bbls.lb.	.35	.36
Carb, USP, lump 150 lb kegs .....lb.	...	.11
USP, powd 150 lb kegs..lb.	...	.12
Citrate, 100 lb kegs.....lb.	.90	1.30
Ichthyolate, as to brand..lb.	4.00	4.50
Iodide, USP, 25 lb jars...lb.	...	3.72
Phosphate, dibasic 250 lb bbls .....lb.	.48	.50
Salicylate, USP, 100 lb kegs .....lb.	1.15	1.20
Valerate, USP, 25 lb jars...lb.	2.75	2.90
Amylene Hydrate, 1 lb bot..lb.	...	7.10
Antipyrine, USP, 100 lb cans.lb.	2.00	2.50
Apomorphine Hydrochloride, ¼ oz. vials.....oz.	22.45	22.70
Arecoline Hydrobrom, 1 oz vials .....oz.	4.25	4.50
Aspidospermine Amorphous..oz.	...	15.00
Atropine Alk, USP, 1 oz. vials .....oz.	5.00	5.25
Methyl bromide, 1 oz vials.oz.	...	25.00
Sulfate, 5 oz cans.....oz.	...	2.50
Single ounce.....oz.	...	3.00
Barbital, 1 lb. bot.....lb.	3.75	3.85
Barium Iodide, 5 lb box.....lb.	...	4.35
Sulfate, X-ray diagn bbls..lb.	.09½	.10
BAY RUM Porto Rico, 45 gal. bbls.....gal.	.75	.80
Domestic syn. 50 gal bbl..gal.	.70	.75
St. Thomas, 50 gal bbls...gal.	.80	.90
Benzocaine 25 lb. lots..... 1 lb.l ots.....lb.	5.00	5.75
Benzonaphthol, 5 lb boxes...lb.	2.50	2.60
Benzoyl Cholride, 500 lb dr..lb.	1.00	1.05
Benzyl Benzoate, Medicinal FFC.....lb.	1.20	1.40
Chloride Redis, 160 lb cby.lb.	.30	.35
Formate, 1 lb bot.....lb.	3.25	3.50
Succinate, 160 lb cby.....lb.	...	5.25
BISMUTH, metal 100 lb cases .....lb.	...	.90
Ammon. Citrate, USP, 5 lb cans.....lb.	...	3.10
Betanaphtholate, 5 lb box.lb.	...	2.90
Citrate, USP, 5 lb cans....lb.	...	2.45
Chloride..... ....lb.	...	2.35
Hydroxide .....lb.	...	2.65
Nitrate, 25 lb jars.....lb	...	.95
Oxide anhydrous.....lb.	...	3.05
Oxychloride, 25 lb boxes...lb.	...	2.60
Salicylate, 25 lb boxes.....lb.	...	1.55
Subcarbonate, USP, 25 lb boxes.....lb.	1.25	1.30
Subcarbonate, X-ray diag 1 lb. bot.....lb.	2.20	2.27
Subgallate, USP, 25 lb boxes .....lb.	1.35	1.40
Subiodide, 5 lb lots.....lb.	...	3.40
Subnitrate, USP, 25 lb jar.lb.	.95	1.00
Subsalicylate, USP, 25 lb boxes.....lb.	2.15	2.20
Tannate.....lb.	...	2.15
Borax, crys USP, 400 lb bbls.lb.	...	.04½
Bromoform, USP, 5 lb bot cases .....lb.	1.65	1.90
Butylchloral Hydrate bot....lb.	4.00	5.00
Cadmium iodide, 10 lb bot...lb.	...	3.65
CAFFEINE Alk, USP, 1..... 100 lb kegs.....lb.	1.95	2.00
Citrated, 50 lb cans.....lb	1.55	1.60
Hydrobromide, 1 lb bot...lb.	4.80	5.00
Hydrochloride, 1 lb bot...lb	6.05	6.55
Sulfate, 1 lb bot.....lb.	5.40	5.90
Sodium Benzoate, tins....lb.	...	3.05
Salicylate, tins.....lb.	...	2.95
Calcium Bromide, 100 lb cs..lb.	...	.60
Carb, USP, 175 lb bbls....lb.	.05	.06
Gluconate, Gran. 125 lb..... bbls.....lb.	.47	.52
Powd.....lb.	.47	.52
Glycerophos, 250 lb bbls...lb.	...	1.05
Hypophos, USP, 25 lb cans lb.	.55	.60
Iodide, 5 lb bot.....lb.	...	3.75
Lactate, USP, 500 lb bbls lb.	.35	.40
Lactophosphate Soluble...lb.	...	1.20
Powdered tins.....lb	...	1.00
Insol, powd tins.....lb.	...	.50
Phosphate & Sulfate Tooth Paste grade, Works..lbs.	.03	.06
Sulfide, USP, 100 lb drs...lb.	.21¼	.24
CAMPHOR, Jap. ref. slabs 100 lb. cases.....lb.	.43	.44
Refined powd.....lb.	.44	.45
½ oz tab, 100 lb cases....lb.	.55	.56
Liniment, bbls.....gal.	2.10	2.20
Monobrom, 100 lb cases...lb.	1.60	1.65
Casein edible, 100 lb kegs...lb.	.45	.55
Charcoal Animal medicinal jars incl.....lb.	...	.50
Charcoal Wood, powd, 100 lb. bbls.....lb.	.06	.07
Chloral Hydrate, USP, 25 lb jars.....lb.	.75	.77
100 lb drums.....lb.	.70	.75
Cholesterin.....lb.	11.00	17.00
Chloroform, USP, 50 lb drs...lb.	.25	.27
Chlorophyll, 1 lb. bot.....lb.	3.75	4.00
Chromium Sulfate Scales, tins .....lb.	.45	.50
Powdered tins.....lb.	.50	.55
Chrysarobin, 50 lb tins.....lb.	2.50	2.55
Cinchonine Alk, 100 oz tins.oz. Crystal.....oz.	.38	.40
Sulfate, 100 oz tins.....oz.	.24	.26
Cinchonidine Sulfate, 100 oz tins .....oz.	.33	.35
Cinchophen, U.S.P. kegs...lb.	2.75	3.25
Cocaine Alk, USP, 1 oz vial..oz.	...	11.07
Hydrochloride, USP,.....oz.	...	8.50
CODEINE Alk, 1 oz vials, 10 lots.....oz.	...	10.52
Hydrobromide.....oz.	...	8.92
Hydrochloride.....oz.	...	9.52
Nitrate, oz vl 10 oz lots....oz.	...	9.80
Phosp. oz vl, 10 oz lots....oz.	...	7.92
Salicylate.....oz.	...	8.25
Sulfate, oz vl, 10 oz lots...oz.	...	8.42
Colchicine Alk, USP, 1 oz vl.oz.	...	22.00
Salicylate, 1 oz vls.....oz.	...	35.50
Cream Tartar, USP, 300 lb bbls .....lb.	.14½	.15¼
Imp. powd. 224 lb bbls....lb.	.17½	.17½
Creosote, USP, 42 lb cbys....lb.	.45	.47
Carbonate, 150 lb.....lb.	1.40	1.75
Cresol, USP, 400 lb drums...lb.	...	.18
500 lb drums.....lb.	.12	.15
DIGITALIN Pure, 1 oz vial..oz	15.00	15.50
Dover's Powder, USP, 5 lb tin .....lb.	2.75	2.80
Duboisine Sulfate, 1 oz vl....oz.	35.00	40.00
Emetine Alk, 15 gr vial.....oz.	...	.85
Hydrochloride, USP, 1 oz vl .....oz.	11.00	11.25
15 grain vials.....oz.	2.50	2.70
Ephedrine, alk. 25 oz. tins,..oz.	1.50	1.90
Hydrochloride, 25 oz. tins, oz.	1.30	1.65
Sulfate, 25 oz. tins.....oz.	1.30	1.65
Epsom Salts, USP, 200 lb bbls .....100 lb.	2.25	2.50
Imp. 100 lb bbls.....100 lb.	2.30	2.35
Ergotin Bonjean, 1 lb jars...lb.	18.50	19.00
Eserine Alk, 1 oz vials.....oz.	...	50.00
Salicylate, 1 oz vials.....oz.	...	40.00
Sulfate, USP, VIII 1 oz vials .....oz.	...	40.00
ETHER, USP, 55 lb drums..lb.	...	.11
Anaesthesia, 55 lb drums..lb.	.21	.23
Nitrous, 1 lb bot.....lb.	.75	.77
Ethyl Chloride, 200 lb bot...lb.	.22	.24
Ethyl Iodide, 5 lb bot.....lb.	6.00	6.05
Formaldehyde, USP, 100 lb cbys lc-l wks.....lb.	.07	.07½
Gall Extract.....lb.	.20	.21
GLANDULAR SUBSTANCES 1 lb. lots		
Duodenal Substance.....	...	3.75
Liver Extract 1-20	...	5.75
Orchic Substance (Testicular)	...	3.75
Ovarian Substance, whole ..	...	12.50
Ovarian Residue	...	10.00
Pituitary Substance, whole..	...	45.00
Pituitary Substance, Anterior Lobe	...	40.00
Thyroid, U. S.P.....	...	3.75
Oxgall Powder.....	...	1.25
GLYCERIN, CP, 550 lb drums .....lb.	...	.10½
Gold Chloride, bottles.....oz.	12.00	12.50
Guaiacol, liq. USP. 100 lb. cbys.....lb	1.60	1.70
Crystals.....lb	2.25	2.50
Benzoate, 1 lb bottles....lb.	...	3.00
Carbonate, 5 lb boxes.....lb.	1.75	1.80
Halazone, 5 lb bot.....lb.	2.75	3.25
Hexamethylenetetramine, USP, 100 lb dr.....lb.	.46	.47
Homatropine Hydrobrom USP. .....oz.	...	14.50
5 oz and 1 oz vials.....oz.	...	13.50
Hydrastine Alk, USP, 1 oz vial .....oz.	20.50	21.00
Hydrochlide, USP, 1 oz vials .....oz.	20.50	21.00
Sulfate, 1 oz vial.....oz.	22.50	23.00
Hydrastinine Hydrochloride, USP, 15 gr vials.....oz.	...	40.00
Hydrogen Peroxide, USP, soln 375 lb bbls.....lb.	.03½	.04½
Hyoscine Hydrobrom, USP, 1 oz vials.....oz.	13.07	35.00 13.57
5 oz, 1 oz vials.....oz.		
Hyoscyamine Alk, crystals, 1 oz vials.....oz.	...	25.07
Amorphous, 1 oz vial...oz.	...	75.07
Hydrobromide, USP. 1 oz vial .....oz.	...	25.00
Sulfate, 1 oz vial.....oz.	...	25.07
Hypoquinone, 100 lb kegs...lb.	...	1.10
ICHTHYOL, tins.....lb.	4.00	4.25
Iodide Arsenous, 5 lb bot...lb.	...	5.20

Chemicals

Arsenous-Mercuric soln, 5 lb bot	lb	.26
Iodine, crude, 200 lb kegs	lb	25s per kilo
Resublimed, 25 lb jars	lb	3.00
Tincture bbls	gal.	3.25
Iodoform, powd 10 lb bot	lb	5.20
Iron & Ammonium Citrate, USP, 50 lb cans	lb	.42 .44
Chloride, USP, lump 400 lb bbls	lb	.06 .08
Citrate, USP, VIII 25 lb can	lb	.94 .99
Hypophosphite, 5 lb cans	lb	1.40 1.50
Iodide, 1 lb bottles	lb	3.00
Phosphate, USP, 50 lb cans	lb	.69
& Potas Oxalate, 250 lb bbl	lb	.45
Pyrophosphate, USP, 50 lb	lb	.74 .80
& Sod Oxalate, 50 lb. cans	lb	.30½
Sulfate, USP, crys bbls	lb	.04 .04½
Ferrous dried bbls	lb	.08
Valerate, tins	lb	2.75 3.00
Jalap Resin, USP lumps, 5 lb tins	lb	4.00
Powdered, tins	lb	4.65
Lanolin, hyd 350 lb. bbls	lb	.13 .15
Anhydrous, 350 lb. bbls	lb	.14 .16
Lead Acetate, USP, 100 lb kegs	lb	.16½ .19½
Iodide, USP, VIII 5 lb bot	lb	2.55
Lecithin, 5 oz. jars	oz.	1.00 1.30
Vegetable, cans	lb	1.00 2.50
Licorice Ext Mass, cases	lb	.19 .20
Compound powder, bbls	lb	.11 .13
LITHIUM CARBONATE, 250 lb bbls	lb	1.25 1.35
Citrate, USP, 100 lb kegs	lb	1.40
Iodide, 5 lb bottles	lb	4.60
Lobeline Sulfate, ¼ oz vial	oz.	8.75
Magnesium Carbonate, USP, 100 lb bbls	lb	.08 .09
English, oz blocks	oz.	.16 .18
Glycerophosphate, 5 lb tins	lb	3.20 3.25
Hypophosphite, 5 lb cans	lb	1.10 1.15
Oxide, 100 lb. cases	lb	.35 .45
Salicylate, 100 lb kegs	lb	1.10
Stearate, bbls	lb	.18 .20
Manganese Glycerophosphate, 5 lb tins	lb	2.90 3.00
Hypophosphite, USP, VIII 5 lb cans	lb	1.35 1.40
Iodide, 1 lb bottles	lb	5.35
MENTHOL, USP, 60 lb cases	lb	3.00 3.20
Synthetic, cases	lb	2.50 2.90
Mercury Metal, 75 lb flasks	fl.	60.00 61.50
Bichloride, crys 25 lb box	lb	.82
Gran powd, 100 lb kegs	lb	.67
Bisulfate, 25 lb boxes	lb	1.48
Blue Mass, 25 lb boxes	lb	.84
Powd, 25 lb boxes	lb	.85
Blue Ointment, USP, 50%, 25 lb cans	lb	.91
Mild 30%, 25 lb cans	lb	.64
33 1/3% mercury	lb	.67
Calomel, 50 lb boxes	lb	1.15
English	lb	2.65 2.75
Iodide, green, 25 lb jars	lb	3.95
Red, USP, 25 lb jars	lb	3.55
Yellow, USP, VIII, 25 lb jars	lb	3.65
Red precip. Powd. USP, 25 lb. boxes	lb	1.24
White precip, Powd., USP, 25 lb. boxes	lb	1.31
Salicylate, 25 lb bot	lb	2.32
With chalk, USP, 25 lb boxes	lb	.69
Methanol, Pure 1c-1 drs	gal	.44
Methyl Salicylate, USP, 50 lb cans	lb	.40 .42
Methylene Blue, USP, med 5 lb cans	lb	2.00 2.05
Milk powd, 150 lb bbls	lb	.09 .12
MORPHINE Alk, 5 oz tin	oz.	10.90 10.95
Acetate, 5 oz tins	oz.	8.75 8.80
Hydrobromide, 5 oz tins, 10 oz lots	oz.	8.75 8.80
Hydrochloride, 5 oz tins, 10 oz lots	oz.	8.75 8.80
Ethyl Hydrochloride, 5 oz tins 10 oz lots	oz.	10.85
Sulfate, 5 oz tins, 10 oz lots	oz.	7.85 8.00
Naphthalene Flake, 175 lb bbls wks	lb	.04½ .05
Balls, 250 lb bbls wks	lb	.05½ .06
Neo-cinchophen 5 lb. lots	lb	15.00 18.00
1 lb. lots	lb	2.00 2.50
Oxgall, Purified, 5 lb bot	lb	1.80 1.90
USP Extract, 5 lb. bot	lb	5.00 5.75
Oxyquinoline Sulfate, tins	lb	1.90
Pancreatin, USP, 100 lb	lb	.08 .09
Paraffin, refd, 200 lb cs slabs 118-120 deg MP	lb	.07½ .07¾
128-132 deg MP	lb	.48 .50
Para-Aldehyde, USP, 100 lb carboys	lb	2.25
Pepsin, USP, 100 lbs. 1:3000	lb	4.00
100 lbs. 1:6000	lb	6.50
100 lbs. 1:10000	lb	.70 1.00
Peptone, powd., or granula 5 lb. 100 lb. lots	lb	
PHENOBARBITAL, U. S. P., 100 lb. lots	lb	6.50
Phenolphthalein, U. S. P	lb	.52
100 lb drums	lb	.60
5 lb cans 100 lb lots	lb	.47
Yellow	lb	
Pilocarpine Hydrochloride, USP, 1 oz vials 25 oz lots	oz.	3.25
Nitrate, 25 oz lots	oz.	3.25
Single ounce	oz.	3.50
Alkaloid, 15 gr vials	vl.	.75
Piperadine, 25 oz bottles	lb	8.00
Popodhyllin 5 lb bottles	lb	4.00 4.15
Potassium Acetate, USP, 100 lb kegs	lb	.29 .30
Bicarb, USP, crys 320 lb bbls	lb	.09½ .10
Bromide, USP, crys 100 lb cs	lb	.31 .32
Citrate, USP, 100 lb. box	lb	.42½ .43
Guaiacol Sulfonate	ib	1.95 2.25
Potassium Hypophosphite, 10 lb. cans	lb	.65 .70
Iodide, USP, 25 lb cases	lb	2.35
Lactophosphate, 4 oz bot	lb	.90
Permangan, USP, crys, 100 lb drs wks	lb	.16 .16½
Phosphate dibasic pure, kegs	lb	.49
Salicylate, 25 lb cans	lb	1.18
Sulfate, USP, VIII, 100 lb kegs	lb	.13 .15
Sulfocyanide, CP 15 lb jars	lb	.50
Tartrate, CP, tins	lb	.65
Pyrogallol, USP, see Acid Pyrogallic		
Quinidine Alk, crystals, 100 oz, tins	oz.	.68 .74
Sulfate, 100 oz tins	oz.	.48
QUININE SULFATE, USP, 100 oz tins	oz.	.37½
1 oz tins, 100 oz lots	oz.	.47½
Acetate	oz.	.78
Arsenate	oz.	.78
Benzoate	oz.	.78
Bisulfate, USP	oz.	.37½
Citrate	oz.	.51
Dihydrobromide	oz.	.54
Dihydrochloride, USP	oz.	.51
Ethyl Carbonate	oz.	.50
Ferrocyanide	oz.	.78
Formate	oz.	.73
Glycerophosphate	oz.	.95
Hydrobromide, USP	oz.	.46
Hydrochlorosulfate	oz.	.51
Hypophosphite	oz.	.70
Lactate	oz.	.65
Phenolsulfonate	oz.	.62
Phosphate	oz.	.52
Salicylate, USP	oz.	.41
Tannate, USP	oz.	.78
Tartrate	oz.	.57
Valerate	oz.	.51
Urea Hydrochloride, USP	oz.	.50
Rennet, N. F. 5 lb 1:25,000	lb	2.95 3.50
Resorcinol, USP, 25 lb cans	lb	1.57 1.65
Rochelle Salt, USP, 225 lb bbl	lb	.11½ .12
Rock Sugar, 5 lb boxes	lb	.15
Saccharin, USP, 10 lb cans	lb	1.70 1.80
USP, Soluble, 10 lb cans	lb	1.75 1.85
Salicin, USP	lb	12.50
SALOL, USP, 100 lb drums	lb	.90
Saltpetre, powd, bbls wks	lb	.06½ .08½
Santonin, USP, bulk	lb	.60 .65
Saponin, refined	lb	1.30 1.50
Seidlitz Mixture, 250 lb bb	lb	.10 .10½
Silver Metal, American	oz.	.29½
Iodide, 16 oz lots	oz.	.69
Nitrate, 100 oz bottles	oz.	.23½ .25½
Nucleinate, bulk	oz.	.37
Proteinate	oz.	.39 .41
SODIUM BENZOATE, USP, 100 lb bbls	lb	.42 .47
Bromide, USP, 100 lb kegs	lb	.31 .32
Cacodylate, USP, 25 lb bot	lb	5.00 5.25
Citrate, USP, X100 lb. box	lb	.31½
USP VIII, 100 lb. box	lb	.25
Glycerophosphate, N.F., crys 25 lb cans	lb	1.27 1.33
Powder, 25 lb tins	lb	1.32 1.38
Soln, USP, 25 lb tins	lb	1.05 1.15
Hypophosphite, USP, 25 lb cans	lb	.60 .65
Iodide, USP, 25 lb jars	lb	3.10
Phosphate (Mono-Sodium), 100 lb kegs	lb	.28 .29
Di-Sodium USP, granular, 275 lb bbls	lb	.07½ .08
Pyrophosphate, 100 lb kegs	lb	.29
Salicylate, 100 lb kegs	lb	.47
Sulfocarbolate, USP, 100 lb kegs	lb	.25
Sulfocyanate, CP crys, jars included	lb	.60
Spartein Sulfate, USP, 25 oz bulk	oz.	.65 .70
Single oz vial	oz.	.77 .90
STRONTIUM BROMIDE USP, 50 lb kegs	lb	.46 .47
Carb, 100 lb kegs wks	lb	.20
Iodide, USP, 25 lb jars	lb	3.00
Lactate, kegs	lb	.90 1.10
Nitrate, 600 lb bbls NY	lb	.08 .08½
Imp. bbls NY	lb	.08 .08½
Salicylate, USP, 100 lb keg lb		1.10
Strophanthin, USP, 1 oz vial	oz.	19.00 19.00
Crystals	lb	75.00 75.00
Strychnine Alk, USP crys, 100 oz tins	oz.	.37
Powdered	oz.	.27
Acetate	oz.	.65
Arsenate, 25 oz cans	oz.	.65
Glycerophosphite, USP	oz.	.65
Hydrobromide	oz.	.65
Hydrochloride	oz.	.65
Hypophosphite	oz.	.75
Nitrate, USP	oz.	.60
Phosphate	oz.	.65
Sulfate, USP, powd	oz.	.24
Sugar, refined, 275 lb bbl 100 lb		5.80 5.90
Milk, USP, 200 lb bbls	lb	.18 .20
Sulfonethylmethane, USP, 10 lb boxes	lb	3.85 4.05
Sulonmethane, USP, 10 lb box	lb	2.65 3.85
Sulfur flwrs. washed, USP, 125 lb bbl	lb	.06
Iodide, USP, VIII, 5 lb bot	lb	3.85
TARTAR EMETIC, USP, 300 lb bbls	lb	.26 .28
Terebene, tins	lb	.85
Terpin Hydrate, USP, 100 lb kegs	lb	.33 .35
Theobromine Alk, 5 lb cans	lb	1.60 1.80
Sod. Salicylate, 1 lb bot	lb	1.85
Sod. Benzoate, 1 oz vials	oz.	1.00
Thymol, USP, 25 lb tins	lb	1.35 1.50
Iodide kegs	lb	3.80
Titanium Oxide, tons, bags, lb.		.18
100 lb. kegs	lb	.19¼
Veratrine Alkaloid	oz.	2.25
Sulfate, 1 oz vials	oz.	2.25
Witch Hazel Ext., 50 gal bbl	gal.	.60 .80
Zinc Carb, USP, 100 lb keg	lb	.28 .31
Chloride, USP, 25 jars ex	lb	.24 .29
Iodide, 5 lb bottles	lb	4.25
Oxide, USP, 100 lb bbls	lb	.13 .14
Stearate, USP, 50 lb bbl	lb	.16 .17
Sulfate, USP, 100 lb bbl	lb	.08 .09
Sulfocarbolate, 100 lb kegs	lb	.23 .26

Miscellaneous

Absorption Bases	lb	.60 .75
Castor Oil, odorless, bbls	lb	.12
Chalk drop, 175 lb. bbls	lb	.03½
Precip. light, 250 lb. cask	lb	.04½
Heavy 540 lb. casks	lb	.04½
English light, bags	lb	.04¼
English light, casks	lb	.05½
Cocoa Butter, fingers		.24 .25
12 lb. box	lb	24.00 25.00
Cod Liver Oil Nor. 30 gal. bbls		21.00 22.00
Newfoundland	bbl.	.13 .14
Collodion U. S. P. 30 lb. dr	lb	
Colors certified; 1 lb. cans, 5 lb. cans		
Amaranth No. 107	lb	2.55 2.65
Brilliant Blue F.C.F	lb	13.00 13.50
Erythrosine No. 517	lb	17.00 17.50
Orange Ind. 85	lb	2.55 2.65
Ponceau 3R No. 56	lb	5.25 5.50
Tartrazine No. 94	lb	2.55 2.65
Corn Syrup 42° 50 gal. bbl.	100 lb	2.28
Gelatin, USP, Silver 100 lb cases	lb	.49 .55
Pure Food, 50 lb. bbl	lb	.47 .49
Glucose, (grape sugar) dry 70° bags c-1 NY	100 lb	3.14 3.24
Haarlem Oil, bot 6 gross cases	gross	3.25
Imported, 5 gr. cs	gross	3.35
Kaolin, Bags	lb	.05 .08
Colloidal Grade 200 lb. tin lined wooden drums	lb	.10½ .12
Mineral Oil White, 50 gal. bbls. 80-85 vis	gal.	.45 .50
85-90 vis	gal.	.65 .70
125-130 vis	gal.	.75 .85
290 vis	gal.	.80 .90
Russian 80-85 vis	gal.	.55 .60
110-115 vis	gal.	.70 .75
145-155 vis	gal.	.73 .78
180-185 vis	gal.	.78 .83
335-345 vis	gal.	.83 .88
Olive Oil, Edible bbls	gal.	1.45 1.65
Paraffin Wax, fully refined, slabs 125 @ 127 A.M.P. bags lb		.03½
130 @ 132 A.M.P. bags lb		.04
135 @ 137 A.M.P bags lb		.04½
Petrolatum, Lily White, USP, 400 lb. bbl	lb	.07 .08
Snow White USP, 400 lb. bbls	lb	.08 .09
Rice Starch, 140 lb bags	lb	.09 .10
Soap Castile, bars 40 lb. Case	Cs.	12.75
Powd. USP 250 lb. bbls	lb	.21 .23
Green, USP, 450 lb. bbls	lb	.07½ .07¾
Neutral, powd. 200 lb. bbls	lb	.18 .20
Talc, Italian, 220 lb bags	ton.	55.00 75.00
French, 220 lb bags	ton.	45.00 50.00
Turtle Oil, gal		3.50 5.00

Waxes, See Drugs & Spices

Acetophenene, CP, 1 lb bot..lb.	3.50	3.65
Aldehyde, C 8 (Otcyl) 1 lb bot ..lb.	30.00	35.00
C 7, 1 lb bot..lb.	4.50	5.50
C 9 (Nonyl), 1 lb bot ....lb.	40.00	45.00
C 10 (Decyl), 1 lb bot....lb.	30.00	35.00
C 14, 1 lb bot..lb.	8.50	14.00
C 16, 1 lb bot..lb.	9.25	18.00
AMYL ACETATE, pure, 25 lb cans..lb.	.43	.50
Butyrate, 1 lb bot..lb.	.95	1.50
Butyrate, 5 lb bot..lb.	...	1.00
Cinnamate, 5 lb bot..lb.	9.50	9.75
Formate, 1 lb bot..lb.	...	1.75
Formate, 5 lb bot..lb.	...	1.60
Phenyl Acetate, 1 lb bot...lb.	4.50	5.00
Salicylate, 100 lb cbys....lb.	.65	1.25
Anethol, 2 lb bot..lb.	.90	1.05
Anisic Aldehyde, 1 lb bot....lb.	3.10	3.60
Benzaldehyde, USP, 40 lb cbys ..lb.	1.30	1.40
FFC, 40 lb cbys..lb.	1.35	1.45
Benzoic Ether, see Ethyl Benzoate		
Benzophenone, 1 lb bot.....lb.	1.75	2.25
Benzyl Acetate, 100 lb cbys..lb.	.60	.80
Alcohol, 5 lb bot..lb.	.85	.95
BENZYL BENZOATE.....	1.10	1.15
Medicinal, FFC.....lb.	...	1.40
Buytrate, CP, 1 lb bot....lb.	9.25	9.50
Benzyl Cinnamate, 1 lb bot. lb.	7.00	7.25
Formate, 1 lb bot..lb.	3.15	3.25
Propionate, 1 lb bot.....lb.	2.25	2.40
Succinate, 1 lb bot..lb.	5.25	5.50
Valerate, 5 lb bot..lb.	3.00	3.25
Borneol, 1 lb bot..lb.	1.35	1.85
Bornyl Acetate, 1 lb bot....lb.	1.50	2.60
Bromstyrol, 25 lb cases....lb.	3.75	3.85
Butyl Anthranilate dom, 1 lb bot..lb.		
Carvol, 5 lb bot..lb.	3.10	3.50
Cinnamic Acid, 5 lb cans....lb.	3.25	3.50
Alcohol liquid, 1 lb bot...lb.	2.50	2.60
Crystallizable..lb.	3.50	4.00
Aldehyde..lb.	2.25	2.50
Imported, 1 lb bot..lb.	7.75	9.00
Citral, 25 lb cans..lb.	1.75	3.10
Citronellol 1 lb bot...lb.	2.00	2.25
Citronelyl Acetate, 1 lb bot..lb.	3.50	3.75
Coumarin, 25 lb cans..lb.	3.25	3.50
DECYL ALCOHOL.....lb.	22.00	25.00
Diphenyloxide, 25 lb tins....lb.	1.05	1.20
Diphenyl Methane.....lb.	1.75	2.00
Duodecyl Alcohol.....lb.	24.00	26.00
Ethyl Acetate, pure, 5 lb bot..lb.	.05½	.06½
Benzoate, 5 lb bot.....lb.	1.25	1.50
Ethyl Butyrate, 5 lb bot....lb.	1.80	2.00
Caproate, 1 lb bot.....lb.	3.25	3.50
Cinnamate, 1 lb bot.....lb.	4.00	4.50
Formate, 5 lb bot.....lb.	1.00	1.25
Methyl Paracresol, 1 lb bot ..lb.	3.25	3.50
Phenyl Acetate, 5 lb bot..lb.	3.75	4.00
Valerate, 5 lb bot.....lb.	...	3.75
Salicylate, 5 lb bot.....lb.	1.95	2.00
Eucalyptol, USP, 50 lb cans..lb.	.57	.60
Eugenol, USP, 25 lb cans....lb.	2.00	2.50
Geraniol, 50 lb cases.....lb.	1.75	2.35
Geranyl Acetate, 1 lb bot....lb.	2.75	2.80
Butyrate, 1 lb bot.....lb.	13.00	13.50
Formate, 1 lb bot.....lb.	12.00	12.50
Heliotropin, 100-10 lbs.....lb.	1.65	1.75
Imported..lb.	1.95	2.05
Hydroxycitronellal, 1 lb.....lb.	2.75	3.85
Indol, CP, 1 oz bot.....oz.	2.90	3.00
IONONE, 1 lb bot 100%...lb.	4.00	4.50
Alpha..lb.	5.75	6.00
Beta..lb.	4.50	5.00
Methyl..lb.	5.00	5.25
Iso Borneol..lb.	2.25	2.35
Iso Bornyl Acetate.....lb.	3.00	3.20
Iso-Butyl Benzoate, 5 lb bot..lb.	2.75	3.00
Iso-Eugenol, 1 lb bot.....lb.	3.00	3.05
Iso-Safrol, 1 lb bot imp.....lb.	1.75	1.85
Domestic, 5 lb bot.....lb.	3.50	3.75
Linaloi from Bois de Rose, 5 lb bot..lb.	1.65	3.50
Linalyl Acetate, 1 lb bot....lb.	2.25	2.35
Benzoate, 1 lb bot.....lb.	13.00	14.00
Formate, 5 lb bot.....lb.	10.50	12.00
METHYL ACETOPHENONE ..lb.	2.00	2.15
Anthranilate, 1 lb bot.....lb.	2.10	2.20
Imported..lb.	2.70	2.75
Benzoate, 5 lb bot imp....lb.	1.25	1.35
Domestic, 5 lb bot.....lb.	1.25	1.35
Cinnamate, 1 lb bot.....lb.	3.35	3.85
Heptenone, 1 lb bot.....lb	3.50	4.00
Paracresol, 1 lb bot.....lb	4.50	8.00
Phenylacetate, 5 lb bot...lb	2.50	2.75
Salicylate, USP, 500 lb dr .lb.	...	.40
50 lb cases..lb.	...	.42
Mirbane rect. 1,000 lb drs...lb.	.12	.13
Musk Ambrette 1 lb cans...lb	6.00	6.25
Ketone 1 lb cans.....lb	7.55	7.80
Xylene 5 lb cans.....lb.	2.25	2.85
Nerolin 1 lb cans.....lb.	1.35	1.40
Octyl Alcohol 1 lb bot.....lb.	18.00	20.00
Oenanthic Ether lb bot.....lb.	1.90	2.00
Oleoresin Aspidum..... USP, bot and tins.....lb.	...	1.25
Capsicum, USP, bot and tins ..lb.	1.90	2.15
Cubeb, USP, bot and tins..lb.	2.30	2.60
Ginger bot and tins.....lb.	1.80	1.90
Malefern see Aspidum.....		
Orris, bot & tins.....lb.	12.00	15.00
Pepper, black, USP, bot & tin ..lb.	...	9.50
Vanilla, bot & tins.....lb.	3.80	4.00
Paracresol Methyl Ether....lb.	4.25	4.50
Paracresyl Acetate.....lb.	5.50	5.75
Para Cymene Refd 110 gal dr ..gal.	2.25	2.50
PHENYLACETALDEHYDE 50% 1 lb bot.....lb.	4.50	4.75
Imported 50%.....lb.	4.50	4.75
100%.....lb.	8.00	8.25
Phenylacetic Acid 1 lb bot..lb.	2.65	2.90
Phenyl Diacetate 1 oz bot....oz.	3.00	3.25
1 lb bot..lb.	8.00	10.00
Imported..lb.	7.00	7.75
Phenylethyl Alcohol 1 lb bot..lb.	3.75	4.00
Phenyl Ethyl Acetate.....lb.	8.25	8.75
Butyrate 1 lb bot.....lb.	15.00	16.00
Formate, 1 lb bot.....lb.	19.00	21.00
Propionate, 1 lb bot.....lb.	10.00	12.00
Valerate, 1 lb bot.....lb.	14.00	15.00
Phenylpropylalcohol, 1 lb bot ..lb.	8.50	9.00
Rhodinol, 1 lb bot.....lb.	7.00	15.00
Skatol, 1 oz bot.....lb.	4.50	7.00
Terpinyl Acetate, 25 lb cans..lb.	.85	.90
Imported, 25 lb cans.....	.85	.90
TERPINEOL, CP, 1000 lb drs ..lb.	.32	.33
50 lb cans.....lb.	.35	.36
Absolute, 25 lb cans.....lb.	.48	.50
TOLYL ALDEHYDE, F.F.C. 40 lb. carboys.....lb	2.10	2.25
Valerianic Ether see Ethyl Valerate.....		
Vanillin (Clove Oil), USP..lb.	4.50	4.75
(Guaiacol) USP.....lb.	4.25	4.50

Essential Oils

Almond Bitter, USP, 5 lb bot lb.	2.00	2.10
Bitter, ffPA, 5 lb bot.....lb.	2.10	2.20
Sweet, 56 lb cans.....lb.	.52	.58
Almond Meal, 25 lb cans....lb.	.18	.19
Amber crude, 25 lb tins.....lb.	.16	.18
Rectified, 25 lb tins.....lb.	.50	.53
Amber liquid, 400 lb drs....lb.	2.20	2.30
Ambergris, Black, boxes.....oz.	14.00	15.00
Gray boxes.....oz.	25.00	30.00
Angelica Root, 1 lb bot.....lb.	29.00	32.00
Anise Tech, 400 lb drums...lb.	.33	.36
USP, 60 lb cans.....lb.	.35	.38
Apricot Kernel, 50 lb cans...lb.	.22	.23
Bay, 25 lb tins N. F. V., 50.55% Phenol.....lb.	1.50	1.65
Terpeneless.....lb.	4.25	4.45
BERGAMOT, 25 lb coppers..lb.	1.20	1.75
Terpeneless.....lb.	6.25	8.00
Artificial, 25 lb cans.....lb.	1.00	1.40
Birch, Sweet, Northern, 25 lb tins.....lb.	3.00	3.10
Southern, 25 lb tins.....lb.	...	1.85
Birch Tar, rect., 5 lb bot.....lb.	.50	.55
Crude, 50 lb tins.....lb.	.13	.14
Bois de Rose, tins..... Brazilian .....lb.	1.00	1.10
Cayenne, tins.....lb.	2.10	2.30
Cade, 25 lb cans.....lb.	.24	.30
Cajuput, native, 50 lb tins..lb.	.45	.57
Calamus, 5 lb bot.....lb.	2.75	3.00
Camphor Sassa, 1000 lb drs..lb.	.10	.12
White, 400 lb drs.....lb.	.13	.15
50 lbs.....lb.	.15	.17
CANANGA, Native 25 lb tins ..lb.	1.80	2.00
Rectified, 25 lb tins.....lb.	2.25	2.45
Caraway, USP.....lb.	1.65	1.75
Cardamon, NF, 1 lb bot.....lb.	14.00	15.00
Cascarilla, 1 lb bot.....lb.	56.00	70.00
Cassia,..... Redist, USP, 50 lb cans...lb.	1.00	1.05
Cedar Leaf, 50 lb tins.....lb.	.60	.65
Cedar Wood, light, 1000 lb drs ..lb.	.28	.32
Celery, 1 lb bot.....lb.	10.50	12.50
Chaulmoogra, USP 80 lb cases lb.	...	1.50
Cinnamom Ceylon, 1 lb bot..lb.	8.00	10.00
Leaf, 5 lb bot.....lb.	•1.85	1.95
CITRONELLA Ceylon, 1000 lb drs.....lb.	.33	.34
50 lb tins.....lb.	.35	.36
Java, 400 lb drs.....lb.	.41	.43
50 lb tins.....lb.	.43	.45
Civet, Abyssin, horns.....oz.	2.10	3.00
Cloves, USP, 50 lb cans.....lb.	.85	.90
6 lb bot.....lb.	.95	1.00
Copaiba.....lb.	.50	.55
Coriander, USP, 10 lb bots..lb.	4.10	4.35
Croton USP, 25 lb tins.....lb.	2.10	2.35
Cubebs, USP, 5 lb bot.....lb.	2.55	2.85
Cumin, 1 lb bot.....lb.	7.00	7.50
Dill, 25 lb cans.....lb.	3.25	5.25
Erigeron, 20 lb tins.....lb.	.95	1.05
EUCALYPTUS Austl, USP, 56 lb cans, cases.....lb.	.24	.26
500 lb drs.....lb.	.22	.23
Fennel, USP, 25 lb tins.....lb.	1.00	1.25
Geranium African, 25 lb tins..lb.	4.50	5.25
Bourbon, 28 lb tins.....lb.	4.50	5.00
Turkish, 28 lb tins.....lb.	1.85	2.05
Ginger, 1 lb bot.....lb.	3.00	3.25
Gingergrass, 28 lb tins.....lb.	2.50	2.70
Grape Fruit.....lb.	2.75	2.85
Hemlock, 25 lb tins.....lb.	.75	.90
Juniper Berries, USP, 25 lb tins ..lb.	1.20	2.00
Wood, 50 lb tins.....lb.	.50	.60
Labdanum, 5 lb bot.....lb.	5.50	6.00
LAVENDER, USP, 28 lb tins ..lb	1.40	2.10
Spike Spanish, 50 lb cans..lb.	.48	.65
Lemon Ital, 25 lb cans.....lb.	.80	1.05
California 35 lb cbys....lb.	...	.65
Lemongrass, native, 50 lb cans ..lb.	.60	.63
Limes, expressed, 25 lb tins..lb.	10.00	12.50
Distilled, 25 lb tins.....lb.	7.25	7.75
Linaloe Mex., 70 lb cases....lb.	...	1.40
Mace, distilled, 50 lb tins....lb.	.95	1.00
Mandarin, 25 lb cases.....lb.	3.75	4.00
Musk Pods Cabardine, tins..lb.	...	...
Musk Tonquin, tins, Pods...oz.	18.00	20.00
Tonquin, tins, Grained..oz.	20.00	22.00
MUSTARD, USP, 1 lb bots.lb.	8.50	9.00
Artif, USP, 5 lb bot.....lb.	1.60	1.70
Neroli Bigarade, ½ & ¼ & 1 lb bot ..lb.	75.00	105.00
Petale, 1 lb bot.....lb.	95.00	105.00
Artificial, 1 lb bot.....lb.	5.00	15.00
Nutmeg, USP, 50 lb tins....lb	.95	1.00
ORANGE BITTER, 25 lb tins ..lb	1.10	1.50
Sweet African 25 lb. tins..lb.	.80	.90
Sweet W Ind , 25 lb tins..lb	1.10	1.25
Italian, 25 lb cop.....lb	1.05	1.25
Orange American, Cold pressed 25 lb tins.....lb.	...	.70
Distilled, 25 lb tins.....lb.	...	.40
Spanish, 25 lb tins.....lb.	...	1.20
Oil Orris, concrete.....oz.	4.00	4.25
Origanum, 50 lb cans tech...lb.	.25	.27
Parsley, 1 lb bot.....lb.	6.50	6.75
Patchouli, 5 lb bot.....lb.	3.25	4.00
Pennyroyal, dom, 25 lb tins..lb.	1.65	1.75
Imported, 25 lb tins.....lb.	...	1.25
Pepper Black lb.,.....	...	6.00
Peppermint, nat. 60 lb cases lb.	2.50	2.70
Redis, USP, 60 lb cs.....lb.	2.75	3.10
Petit Grain S A., 25 lb tins..lb.	.95	1.00
French, 1 lb bot.....lb.	4.50	4.75
Italian, 25 lb tins.....lb.	2.20	2.30
Pimento Leaf, 25 lb tins ....lb.	1.15	1.30
Berries, 25 lb tins .....lb	3.00	3.10
Pine Needle Siberian, cans..lb.	.80	1.00
Pinus, Sylvestris, 25 lb tins..lb.	1.30	2.00
Pumilio, USP, 25 lb tins...lb.	1.85	1.90
Rose Fr, 8, 16, & 32 oz pkgs..lb.	14.00	17.00
Bulg, 8, 10 & 32 oz pkgs...oz.	6.00	17.00
Rosemary, USP, 27½ lb tins..lb.	.34	.40
1000 lb drums.....lb.	.32	.38
Tech, 25½ lb tins.....lb.	.26	.28
Rue, 1 lb bot.....lb.	2.00	2.25
SANDALWOOD, E Ind ,USP, 100 lb case.....lb.	5.50	6.50
W Indian (Amyris), 25 lb. tins.....lb.	2.85	2.95
Australian, Tins.....	2.95	3.25
Sassafras, USP, 50 lb cans...lb.	.68	.90
Artificial, 1000 lb drs, 60 lb cans.....lb.	.18	.20
Safrol, cans.....lb.	.24	.26
Sage, Dalmatian, 25 lb. cans.lb.	2.00	2.10
Savin, 50 lb tins.....lb.	1.85	2.00
Snakeroot, Canada.....lb.	8.25	8.50
SPEARMINT, USP, 50 lb tins ..lb	1.40	1.60
Spruce, 50 lb tins.....lb	.70	.75
Tansy, American, 25 lb tins..lb.	1.75	1.95
Tar, 50 gal bbls.....lb.	.25	.30
USP, 50 gal bbls.....lb.	.75	1.50
Thyme, red, NF, 25 lb tins..lb.	.60	.75
White, NF, 25 lb tins.....lb.	.65	.80
Tech, 110 lb drums.....lb.	.50	.55
Turpentine, USP, rect cbys..lb.	.27	.30
Vetivert Bourbon, 10 bot....lb.	4.00	4.25
Indian, 1 lb bot.....lb.	25.00	38.00
Java, 1 lb bot.....lb.	12.00	13.00
Wine, heavy, 1 lb bot.....lb.	1.50	1.60
WINTERGREEN Gaultheria, true, 25 lb tin.....lb.	8.00	10.00
Southern, 25 lb tins....lb.	3.75	4.00
Synthetic see Methyl salicylate.....		
Wormseed, Balt, 25 lb tins..lb.	1.85	2.10
Wormwood, dom, 25 lb tins..lb.	2.50	3.00
Ylang Ylang Bourbon, 10 lb tins No. 1.....lb.	4.00	5.50
10 lb tins No. 2.....lb.	3.00	3.50
Manila, 1 lb bot.....lb.	22.00	30.20

Drugs and Spices

Aconite Root, USP, bags....lb.	.12	.13
Agar Agar, No. 1, bales....lb.	.42	.45
Agar Agar No. 2, bales.....lb.	.37	.40
Aletris Root, bags.....lb.	.16	.18
Alkanet Root, bags.....lb.	.10	.12
ALOES, Cape, 400 lb cases. lb.	.10	.11
Curacao, 140 lb cases.....lb.	.10	.11
Socotrine, Whole, 300 lb cs lb.	.30	.32
Althea Root, bags.....lb.	.14	.16
Cut cases.....lb.	.16	.18
Angelica Root, bags.....lb.	.12	.14
Angostura Bark, bags.....lb	.19	.20
Anise seed Star, bags.....lb	.10½	.11
Spanish, bags.....lb	.08½	.09
ARABIC GUM, White, No. 1, 220 lb bags.....lb.	.15	.16
Seconds, 220 lb bags.....lb.	.13	.14
Sorts, Amber, 220 lb bags..lb.	.07	.07½
Powd, USP, 300 lb bbls....lb.	.11	.14
Areca Nuts, 100 lb bbls.....lb.	.05	.07
Powd, 100 lb bbls.....lb.	.10	.11
Arnica Flowers, bales.....lb.	.10½	.11½
Root, bags.....lb.	.40	.41
Arrowroot, St. Vincent, powd bbls.....lb.	.08¼	.09¼
Asafoetida, 250 lb cases.....lb.	.18	.20
Powd, 50 lb boxes.....lb.	.32	.35
Balm Gilead Buds, bags....lb.	.20	.21
Balmony Herbs, bales.....lb.	.10	.12
BALSAM COPAIBA Para, 80 lb cases.....lb.	.23	.24
South American, USP, 80 lb cases.....lb.	.25	.26
Peru, 120 lb cases.....lb.	.95	1.00
Tolu, 90 lb cases.....lb.	.78	.88
Barberry Bark, of root, bags lb.	.15	.17
Bayberry Bark, bales.....lb.	.07	.08
Wax bbls.....lb.	.15	.17
Bees Wax, White, cases.....lb.	.30	.34
Yellow refined cases.....lb.	.21	.24
Yellow Crude Bags.....lb.	.16	.20
BELLADONNA LEAVES, bale .....lb.	.11	.14
Root, bags.....lb.	.11	.12
Benzoin Gum, Siam, boxes...lb.	1.05	1.30
Sumatra, cases.....lb.	.20	.22
Berberis Aquafolium Root, bags .....lb.	.08	.09
Beth Root, bags.....lb.	.08	.09
Black Indian Hemp Root, 100 lb bags.....lb.	.11	.12
Blood Root, bags.....lb.	.10	.11
Blueflag Root, bags.....lb.	.12	.13
Boldo Leaves, bales.....lb.	.11	.13
Boneset Herb, bales.....lb.	.08	.09
Borage Flowers, bales.....lb.	.19	.20
Broomtop Herb Cut, bales..lb.	.08	.09
Bryonia Root, bags.....lb.	.10	.11
BUCHU LEAVES Short, 250 lb. bales.....lb.	.19	.21
Long bales.....lb.	.75	.80
Buckbean Leaves, bales.....lb.	.09	.10
Buckthorn Bark, bags.....lb.	.06	.07
Berries, bags.....lb.	.29	.34
Burdock Root, bags.....lb.	.08	.10
Seed bags.....lb.	.30	...
Burgundy Pitch, 110 stand gross for net.....lb.	.08	.09
Imported.....lb.	.10	.11
Calabar Beans, bags.....lb.	.15	.16
Calamus Root, blchd cases..lb.	.23	.25
Unbleached, bags.....lb.	.07	.08
Calendula Petals, imp bales..lb.	.45	.47
Calisaya Bark, bales.....lb.	.17	.18
Powdered, bbls.....lb.	.22	.23
Canary Seed, South America, bags.....lb.	.03½	.04
Morocco.....lb.	.03½	.04
Turkish.....lb.	.03½	.04
Candelilla Wax, bags.....lb.	.09½	.11
Cannella Alba Bark, bales...lb.	.25	.26
Cannabis, U.S.P.....lb	.16	.23
Cantharides, Chinese, cases..lb.	1.00	1.05
Powdered, boxes.....lb.	1.15	1.25
Russian, cases.....lb.	1.80	2.00
Powdered, boxes.....lb.	No stocks	
Caraway Seed, Dutch, bags..lb.	.08½	.08¾
Cardamon bleached, cases...lb.	.80	1.10
Decorticated, cases.....lb.	.52	.54
Carnauba Wax No. 1, 100 lb. bags.....lb.	.28	.29
Cascara Amarga, 150 lb bbls.lb.	1.25	1.30
So called bales.....lb.	.25	.30
CASCARA SAGRADA,		
1931 bark.....lb.	.11	.12
1932 bark.....lb.	.10	.11
New crop.....lb.	.09	.10
Cascarilla Bark, quills, bales.lb.	.70	.75
Siftings, bbls.....lb.	.50	...
Cassia Batavia No. 1 bbls....lb.	.09	.09½
Shortstick, bales.....lb.	.08	.08½
Batavia No. 3, bales.....lb.	.07	.07½
China Select Rolls, cases..lb.	.05	.06
Broken, bales.....lb.	.04	.04½
Saigon, thin.....lb.	.18	.18½
Buds, cases.....lb.	.12	.12½
Fistula, baskets.....lb.	.07½	.09
Catnip, Herb, bales.....lb.	.14	.15
Celery Seed, bales.....lb.	.45	.50
Ceresin Wax, White, bags...lb.	.11	.15
Yellow 200 lb. bags.....lb.	.10	.12
Imp. white 100 lb. bags.lb.	.21	.38
CHAMOMILE FLOWERS		
Roman, bales.....lb.	.35	.45
Hungarian, cases.....lb.	.16	.17
Charcoal Willow, powd, bbls.lb.	06	.06½
Wood, powd, bbls.....lb.	.04	.05
Chestnut Bark.....lb.	.07	.08
Leaves bales.....lb.	.05	.06
Chicle Gum, 200 lb. bales...lb.	.27	.30
Chiretta, bales.....lb.	.13	.14
Cinnamon, Ceylon, No. 1, bales .....lb.	.12	.14
No. 2 bales.....lb.	.09	.09½
Clover Tops, Red, bags ....lb.	.11	.13
Cloves Zanzibar, bales.....lb.	.10½	.11
Cochineal, Black.....lb.	.51	...
Silver.....lb.	.45	...
Cohosh Root, Black, bags....lb.	.05	.06
Blue, bags.....lb.	.06	.07
Colchicum Root, bags.....lb.	.11	.13
Seed, bags.....lb.	.60	.65
COLOMBO ROOT, bags...lb.	.05	.07
Colocynth Pulp, bales.....lb.	.13	.14
Coltsfoot Leaves, bags.....lb.	.07	.08
Comfrey Root, bags.....lb.	.11	.12
Condurango Bark, bags.....lb.	.09	.10
Coriander Seed, Morocco, bags .....lb.	.06	.07
Bleached, bags.....lb.	.08	.09
Corn Silk, bales.....lb.	.06	.07
Cotton Root Bark, bales....lb.	.06	.07
Cowhage, 1 oz tins.....lb.	1.00	...
Cramp Bark so called bales..lb.	.06	.07
True, bags.....lb.	.25	.27
Cranesbill Root, bags.....lb.	.08	.09
CUBEB BERRIES, XX bags .....lb.	.30	.31
Powdered, boxes.....lb	.32	.33
Culvers Root, bags.....lb.	.12	.13
Cumin Seed, Morocco, bags..lb.	.09½	.10
Cuttlefish, Bone Trieste, Straps .....lb.	.19	.22
French, boxes.....lb.	.18	.21
Powdered, bbls.....lb.	.09	.10
Broken, bales.....lb.	.07	...
Damiana Leaves, bales.....lb.	.16	.17
Dandelion Root, Imp. bags..lb.	.11	.12
Deer Tongue Leaves, bales...lb.	.07	.09
Digitalis Leaves, bales.....lb.	.27	.29
Dogwood Bark, Jamaica bags .....lb.	.07	.08
American bales.....lb.	.06½	...
Doggrass Root, USP, cut bags .....lb.	.11	.12
Dragons Blood Mass, cases..lb.	.80	.85
Reeds, boxes.....lb.	.85	.90
Echinacea Root, bags.....lb.	.15	.16
Elcampane Root, bags.....lb.	.06	.07
Elder Flowers, bags.....lb.	.14	.15
Elemi Gum, 85 lb cases.....lb.	.09½	.10
Elm Bark, bundles.....lb.	.14	.17
Grinding bags.....lb.	.08	.09
Powdered, bbls.....lb.	.13	.16
Ephedra Vulgaris, bales.....lb.	.05	.06
ERGOT, 150-200 lb bags....lb.	.35	.45
Eucalyptus Leaves, bales....lb.	.06	.07
Euphorbia Pilulifera, Herb, bags.....lb	.06	.08
Euphorbium Gum, cases....lb.	.14	.20
Fennel Seed, French, bags...lb.	.07½	.08
German bags.....lb.	.09	.10
Foenugreek Seed, 200 lb bags .....lb.	.04½	.05
Fish Berries, 100-125 lb bag..lb.	.13	.15
Flax Seed, Whole 182 lb bbls.lb.	.05½	.06½
Ground, 180 lb bbls.....lb.	.06	.07½
Fringe Tree Bark or Root bags .....lb.	.10	.12
Fumigating Pastiles, boxes..lb.	.28	.30
Galangal Root, bags.....lb.	.08	.09
Galbanum Gum, cans.....lb.	.85	.90
Gamboge Gum, 100 lb cases..lb.	.50	.55
Powdered, cases.....lb.	.65	.70
Gelsemium Root, bags.....lb.	.07	.08
GENTIAN ROOT, bags....lb.	.17	.18
Ground bbls, boxes.....lb.	.19	.20
Powdered, bbls, boxes....lb.	.19	.20
Ginger, African, bags.....lb.	.05½	.06½
Jamaica Grinding bags....lb.	.10	.12
Cochin ABC & Lemon, bags .....lb.	.05½	.06
Ginseng Root, cultivated cs..lb.	8.00	10.00
Wild Southern, cases.....lb.	11.00	13.00
Golden Seal Root, bags.....lb.	.65	.70
Powdered, boxes.....lb.	.85	.95
Herb, barrels.....lb.	.35	.40
Grains of Paradise, bags....lb.	.08	.10
Grindelia Robusta, Herb, bale .....lb.	.07	.08
Guaiac Gum, 150 lb cases....lb.	.20	.22
Strained 75 lb cases...lb.	.70	.75
Guarana, tin cases.....lb.	.50	.55
Hellebore Root, Black, bbls. lb.	.05½	.06
White, 250 lb bbls.....lb.	.07	.08
Powdered.....lb.	.10	.11
Helonias Root, bags.....lb.	.25	.27
Hemp Seed, bags.....lb.	.02½	.03
Henbane Leaves, USP, bales.lb.	.10	.11
HENNA LEAVES, bales....lb.	.07	.08
Powdered.....lb.	.10	.15
Hops, bales.....lb.	.69	.74
Horehound, Herb, bales.....lb.	.06½	.07
Hydrangea Root, bales.....lb.	.06	.07
IPECAC ROOT, Cartagena, bags.....lb.	.75	.80
Powdered, 220 lb bbls...lb.	.85	.90
Nicaraugua. 125 lb. bags lb.	.60	.65
Isinglass, American, 130 lb cases .....lb.	.95	1.00
Russian (Beluga), boxes...lb.	4.50	...
Jaborandi Leaves, bales.....lb.	.10	.11
Jalap Root, Whole, 150 lb bag.....lb.	.15	.16
USP, Powd, 250 lb bbls....lb.	.19	.20
Japan Wax 224 lb. cases.....lb.	.06½	.08
JUNIPER BERRIES, 125 lb bags.....lb.	.05	.05½
Kamala, boxes.....lb.	.21	.22
Karaya Gum, Powdered, bbls.lb.	.11	.20
Kava Kava Root, bags.....lb.	.13	.14
Kino Gum, Black, cases.....lb.	.50	.55
Kola Nuts, 150 lb bags.....lb.	.05½	.06
Lady Slipper Root, bags....lb.	.28	.30
Larkspur Seed, bags.....lb.	.25	.27
Laurel Berries, bags.....lb.	.08	.09
Leaves, Greek, bales .....lb.	.04½	.05
Lavender Flowers, Ordinary.lb.	.16	.20
Selected.....lb.	.30	.32
Lemon Peel, bags.....lb.	.08½	.09
LICORICE ROOT, Whole bbls .....lb.	.12	.15
Spanish Natural bales....lb.	.05½	.07
Powdered, bbls.....lb.	.09	.11
Selected Cases.....lb.	.12	.15
Cutting, 125 lb bags....ln.	.06	.06½
Turkish, 150 lb bales.....lb.	.05	.06
Linden Flowers with leaves, bales.....lb.	.14	.15
Without leaves, bales...lb.	.15	.16
Liverwort Leaves, bales.....lb.	.13	.14
Lobelia, Herb, bales.....lb.	.18	.20
Seed, bags.....lb.	.21	.26
Lovage Root, Imp., bags....lb.	.15	.17
Lupulin N. F., tins.....lb.	1.20	1.65
Lycopodium, 88 lb. cases....lb.	.22	.24
MACE SIAUW, No. 1, cases .....lb.	.34	.35
Banda No. 1, cases.....lb.	.38	.39
Batavia No. 2, cases.....lb.	nominal	
Malva Flowers, Blue, bales..lb.	.65	.70
Black, bales.....lb.	.18	.33
Leaves, bales.....lb.	.12	.13
Manaca Root, bales.....lb.	.18	.19
Manna, Large Flake, cases...lb.	.40	.45
Small Flake, cakes.....lb.	.25	.30
Sorts, cases.....lb.	.45	.50
Mandrake Root, bags.....lb.	.08	.09
Marjoram, Herb.....lb.		
French, No. 1 bales.....lb.	.22½	.23
German, bales.....lb.	.18	.20
Mastic Gum, 120 lb. cases..lb.	.27	.29
Matico Leaves, bales.....lb.	.19	.21
Mezereon Bark, bags.....lb.	.15	.16
Millet Seed, Yellow, bags..lb.	.03	.03½
Montan Wax, Crude, bags..lb.	.06	.07
Bleached, pure. bags.....lb.	.26	.30
Moss, Iceland, bales.....lb.	.10	.11
Irish, Bleached, bales....lb.	.11	.12
Mullein Flowers, tins.....lb.	.95	1.00
Leaves, bales.....lb.	.07	.07½
Musk Root, Russian, bags...lb.	.06	.07
Myrrh Gum, 200 lb, cases...lb.	.20	.22
Nutgalls, Chinese, bags.....lb.	.22	...
Aleppy, bags.....lb.	...	.20
Powdered, bags.....lb.	.13	.15
Nutmegs, 110's cases.....lb.	.11½	.12
75's & 80's cases.....lb.	.13	.13½
Grinding, bags, W.I.....lb	.08	.08½
NUX-VOMICA Buttons, bag .....lb.	.05	.06
Powdered, 200 lb bbls..lb.	.09	.10
Oak Bark, bags.....lb.	.05½	.06
Olibanum Gum, 280 lb cases Siftings.....lb.	.06	.07
Tears, No. 1 Extra.....lb.	.19	.21
No. 2.....lb.	.14	.15
No. 3.....lb.	.09	.10
Opium Gum, USP, cases....lb.	10.00	11.00
Granular, cans.....lb.	11.00	12.00
Powdered, USP, cans.....lb.	11.00	12.00
Orange Flowers, cases.....lb.	.25	.30
Peel, Bitter, bags.....lb.	.07½	.08
Sweet bags,.....lb.	.07	.08
ORRIS ROOT, Flor. bid. bags .....lb.	.09	.10
Powdered, 200 lb bbls..lb.	.13	.14
Verona, bags.....lb.	.07	.08
Powdered, 200 lb bbls..lb.	.11	.12
Fingers, boxes.....lb.	.80	.85
Ozokerite Wax, Brown, Hard lb.	...	...
Bags.....lb.	.26	.28
Green, Hard, bags.....lb.	.26	.28
Yellow, Refined, bags.....lb.	.22	.26
Papain, Crude, 150 lb cases..lb.	1.35	1.40
Pure, Powdered, 10 lb bot..lb.	1.45	1.50
Paprika, bags.....lb.	.20	.23
Mild Hungarian.....lb.	.18½	.19
Pareira Brava Root, bags....lb.	.16	.18
Passion Flower, bales.....lb	.04½	.05½
Patchouli Leaves, bales.....lb.	.15	.16
Pennyroyal, Herb, 100 lb bags .....lb.	.08	.09
Leaves, 100 lb bags.....lb.	.11	.12

PEPPERMINT LEAVES, Imp bales lb.	.30	.50
Domestic, bales lb.	.18	.20
Pichi Leaves, bags lb	.08	.09
Pimento Select, bags lb.	.04½	.05
Pink Root, True, bags lb.	.25	.27
Pleurisy Root, bags lb.	.13	.14
Poke Berries, bags lb.	.15	.16
Root, 200 lb bales lb.	.05½	.06
Pomegrant Bark of Root, bags lb.	.25	.28
Bark of Fruit, bags lb.	.15	.20
Bark of Tree, bags lb.	.15	.17
POPPY FLOWERS, Red, bags lb.	.40	.45
Prickly Ash Bark lb.	.12	.15
Southern bags lb.	.11	.11½
Northern, bags lb.	.12	.13
Berries, bags lb.	.20	.21
Prince's Pine, bales lb.	.15	.20
Psyllium Seed, Black, bags lb.	.10	.12
Plantago Seed, Blonde, Bags lb.	.05	.07
Pulsatilla, Herb, bags lb.	.10	.11
Pumpkin Seed, bags lb.	.11	.12
Pyrethrum Flowers lb.	.16	.17
Pwd., pure, 200 lb.bbls. lb.	.20	.21
Quassia Chips, bags lb.	.05	.06
Quebracho, bulk, 125 lb. bbl. lb.	.20	.21
Quince Seed, Spanish bags lb.	.75	.80
Persian, bags lb	.85	1.25
Rape Seed, German, bags lb.	.03¾	.04¼
Dutch, bags lb.	.05	.05½
Raspberries, Dried, bbls. lb.	.25	.30
Red Saunders, bags lb.	.08	.09
Rhatany Root, bags lb.	.11	.12
Rhubarb Root, HD, cases lb.	.19	.20
Powdered, bbls lb	.23	.24
Rosemary Leaves, bales lb.	.05½	.06
Flowers, cases, bales lb.	.28	.32
Rose Petals, pale lb.	.13	.14
Red lb.	.45	.50
Rue, Herb, bales lb.	.18	.20
Sabadilla Seed, bags lb.	.17	.18
Powdered, bbls lb.	.19	.20
SAFFRON FLOWERS, American, bales lb.	.16	.18
Valencia, 1 lb cans lb.	10.50	11.00
Sage Dalmatian, bales lb.	.05	.05½
Sandarac Gum, 300 lb bbls. lb.	.23	.24
Sarsaparilla Root, Honduras, bales lb.	.55	.60
Mexican, bales lb.	.13	.14
Sassafras Bark, Ordinary, bales	.08	.10
Select, bales lb.	.12	.15
Savory Leaves, bale lb.	.05¾	.06½
Saw Palmetto Berries, bags lb.	.07	.08
Scammony Resin, boxes lb.	1.30	1.35
Root, bags lb.	.06	.07
Senega Root, bags lb.	.37	.40
SENNA ALEX., 150 lb cases lb.	.20	.25
Half leaf 150 lb bales lb.	.08	.10
Sifting, 400 lb bales lb.	.08	.09
Tinnevelly, Bold, 350 lb bales lb.	.09	.11
Medium Leaf lb.	.07½	.08½
Small Leaf lb.	.06	.08
Pods, 350 lb lb.	.08	.09
Powdered, 200 lb lb.	.08	.09
Serpentaria Root, bags lb.	.32	.33
Simaruba Bark, bales lb.	.23	.25
Skullcap Leaves, Eastern, bales lb.	.25	.30
Western, bales lb.	.14	.24
Skunk Cabbage, Natural, bales lb.	.13	.15
Snake Root, Canada Natural, bags lb.	.16	.18
Canada, Stripped, bags lb.	.40	.45
Soap Bark lb.	.08	.09
Cut, 125-175 lb bags lb.	.06	.07
Crushed, 200 lb bbls. lb.	.15	...
Powdered, bbls. lb.	.09	.10
Spearmint Leaves, American, bales lb.	.16	.17
Spermaceti, blocks, cakes, cases lb.	.22	.23
Bulk lb.	.21	.22
Spikenard Root, bags lb.	.07	.08
Squaw Vine, bales lb.	.11	.12
Squills, White, tested lb.	.05	.07
Powdered, bulk lb.	.13	.15
Stavesacre Seed, bags lb.	.13	.14
Stillingia Root, bags lb.	.06	.07
Stone Root, bags lb.	.07	.08
St. Ignatius Beans, bags lb.	...	.90
St. John's Bread, bags lb.	...	.06
STRAMONIUM LEAVES, bales lb.	.10	.11
Seed, bags lb.	.07½	...
Strophanthus Seed, Kombe, bags lb.	1.45	1.65
Styrax Liquid, Artificial lb.	.26	.35
Genuine, USP lb.	.38	.43
Sunflower Seed, bags Calif. lb.	.05	.06
South American, bags lb.	No stocks	
Tamarinds, bbls lb.	.05½	.06½
Kegs keg	3.75	3.85
Tansy, Herb, bales lb.	.12	.13
Thus Gum, 450 lb bbls lb.	.05½	.06½
THYME, Spanish, bags lb.	.06	.07
French, bags lb.	.07¾	.08½
Tonga Root lb.	.22	.25
Bark, bundles lb.	.22	.25
Tonka Beans, Angostura Cases	2.25	2.50
Para cases lb.	.65	.75
Surinam cases lb.	.75	.85
Tragacanth Gum, No 1, 100 lb. cases lb.	.70	.75
No. 2 lb.	.58	.60
No. 3 lb.	.50	.52
Powdered, 50 lb boxes lb.	.55	.65
Turkish cases lb.	.40	.60
Turmeric Root Madras, bags lb.	.06	.06½
Aleppy bags lb.	.05½	.06
Powdered lb.	.10	.12
China bags lb.	.11	.12
Turpentine Venice True, 80 lb cases lb.	.30	.38
Artificial, 80 lb cases lb.	.15	.16
Uva Ursi Leaves, bales lb.	.05	.06
Valerian Root, Belgium bags lb	.14	.16
VANILLA BEANS, Mexican, whole, cases lb.	3.00	4.00
Cuts, cases lb.	2.40	2.60
Bourbon, cases lb.	.70	1.25
Vetivert Root, 100 lb bags lb.	.20	.25
Violet Flowers, bags lb.	.85	.90
Wahoo Bark of Root, bags lb.	.28	.30
Bark of Tree, bags lb.	.13	.14
White Pine Bark, Roseed, bags lb.	.05½	.06
White Poplar Bark, bags lb.	.06	.07½
Wild Cherry Bark, Natural thin, Green lb.	.06	.07
Rossed bales lb.	.09	.10
Thick Rossed, bales lb.	.04	.05
Wild Indigo Root, bags lb.	.09	.10
Willow Bark, bags lb.	.05	.06
White, bags lb.	.15	...
Witch Hazel Bark, bags lb.	.05	.06
Leaves, bales lb.	.06	.07
Wormseed, American, bags lb.	.06	.07
Wormwood, Herb, Imp., bales lb.	.08	.09
Yellow Dock Root, bags lb.	.08	.09
Yerba Mate, bags lb.	.13	.15
Santa, bags lb.	.07	.08

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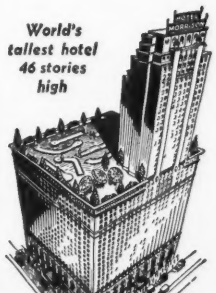

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(*Continued from page 507*)

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Preservatives for Cosmetics

(*Continued from page 511*)

coming Austrian Pharmacopoeia[25]; the Swiss listing also mentions these compounds in many preparations[26].

Good preservatives offer opportunities for expansion in cosmetic work.

All plant and animal gums and jellies (agar-agar, carragheen, gelatin, gum, pectin, tragacanth, etc.) which are the basic substances for many cosmetic preparations, plant and drug extracts, solutions, etc. must be harmlessly protected against alteration and decomposition by microbes.

All fat-free and fat-containing creams and emulsions must also be well preserved and not left to become rancid, as they will unless the growth of micro-organisms is retarded. In the following table I have made observations on the content of preservatives for a number of cosmetic products to obtain best preservation, based upon individual work with the preservative substances. For the method of using the preservatives, I recommend the following procedure:

The free esters are dissolved in the water to be used by five minutes of boiling and vigorous stirring and the hot solution is then thoroughly mixed with the preparation. In certain cases, where addition of water is to be avoided, the free esters may be dissolved in 95 per cent alcohol of pure acetone, in which they are soluble to the extent of one part in four. In this way, a solution of 25g. of the ester in 75g. alcohol is added dropwise with stirring to the preparation to be preserved.

The esters are also easily soluble in other organic solvents such as triethanolamine, glycerin (to the extent of two per cent on heating) as well as in various perfume oils and in warm fatty oils and melted fats to the extent of three per cent; the esters are dissolved in part of the oil or melted fat and the concentrated solution so made is worked into the main portion of the oils or fats or directly into the preparation. The finely powdered esters may also be incorporated into solid fats or cosmetics containing fats by means of intimate grinding, when the ester is gradually dissolved in the fat.

By using the very easily water soluble salts of the esters, a 40 per cent. stock solution may first be prepared, e. g., 10g. of the sodium ester is dissolved by stirring in 15g. water at room temperature. This stock solution is mixed with enough of the preparation to be stabilized to bring the concentration of preservative down to the proper point. This procedure may be followed with creams and emulsions containing fats and water.

In the preceding, and in substances mentioned in the table, if it is desired to confer a strong antiseptic effect, as well as to cause preservation, without changing the character of the material, it is only necessary to use three to five times the quantities of esters specified. For this antiseptic purpose, the benzyl ester is particularly suitable. A mixture with 0.2 per cent is sufficient to make a liquid strongly antiseptic.

I wish to mention here the particular properties of combinations of esters. An emulsion containing 0.15 per cent of propyl ester and 0.15 per cent of benzyl ester has a stronger antiseptic effect than one containing 0.2 per cent of either ester alone. In such combinations, the specific effect of the individual substance is complemented and an enhanced total effect is attained. Duringer[28], von Kneidinger[27] have pointed out the special usefulness of these esters in dentistry and mouth hygiene. The manufacture of antiseptic mouth washes and tooth pastes offers further possibilities for use. Augustin[29] and Schumacher[30] have reported on this matter.

TABLE

No.	*Material to be preserved*	*Concentration for Preservation*			*Sodium Salts*	
		Methyl Ester	*Propyl Ester*		*Methyl Ester*	*Propyl Ester*
1.	Drug decoction	0.1 -0.2%	.....		.....	.....
2.	Casein emulsion	0.25%	+ 0.1%	or	0.3%	+ 0.15%
3.	Fat-free creams	0.05-0.15%	.....	or	0.1-0.2%	.....
4.	Creams containing 5-10% fat	0.1%	+ 0.1%	or	0.12%	+ 0.12%
5.	Creams containing 10-20% fat	.....	0.15%		.....	or 0.16%
6.	Creams containing more than 20% fat	.....	0.12%		.....	or 0.22%
7.	Creams with lecithin, cholesterol or horm.	0.25%	+ 0.05%		.....	.....
8.	Emulsions	0.1%	+ 0.05%		.....	.....
9.	Fat creams	.....	0.25%		.....	.....
10.	Glycerin jelly	0.15%	.....		.....	.....
11.	Hair fixative (jelly)	0.1 -0.2%	.....		.....	.....
12.	Skin function oil (muscle oil, massage oil)	.....	0.15%		.....	.....
13.	Lipstick	.....	0.2%		.....	.....
14.	Solutions (aqueous, glycerin, alcoholic, of chemicals, dyes, etc.	0.1%	.....		.....	.....
15.	Almond milk	0.15%	+ 0.05%		.....	.....
16.	Nail liquid	0.2%	.....		.....	.....
17.	Powder mixture (boric acid, talcum)	1.0%	.....		.....	.....
18.	Mucilage from agar, carragheen, gelatin, gum, pectin, tragacanth, etc.	0.1%-0.2%			.....	.....
19.	Soaps	0.3%	or 0.2%		.....	.....
20.	Hydrogen peroxide	0.1-0.15%	.....		.....	.....
21.	Tooth pastes	0.1-0.2%	.....	or	0.15-0.25%	.....

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